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Report of Proceedings

OF THE

AMERICAN
MINING
CONGRESS

Fourteenth Annual Session

Chicago, Ill., October 24-28, 1911

Published by the American Mining Congress
At the Office of the Secretary, Denver, Colo., 1911

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of the

American Mining
Congress

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UNIV. OF
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PREVIOUS SESSIONS OF CONGRESS.

	DATE.	CITY.	PRESIDENT.	ADDRESS.
1st	July, 1897 ¹	Denver, Colo.	Hon. Alva Adams,	Pueblo, Colo.
1st	July, 1897	Denver, Colo.	Hon. L. Bradford Prince,	Santa Fe, N. M.
2nd	July, 1898	Salt Lake City, Utah.	Hon. L. Bradford Prince,	Santa Fe, N. M.
3rd	July, 1899 ²	Milwaukee, Wis.	Col. B. F. Montgomery,	Cripple Creek, Colo.
3rd	June, 1900	Milwaukee, Wis.	Col. B. F. Montgomery,	Cripple Creek, Colo.
4th	July, 1901	Boise, Idaho.	Hon. L. Bradford Prince,	Santa Fe, N. M.
5th	Sept., 1902	Butte, Mont.	E. L. Shafner,	Cleveland, Ohio.
6th	Sept., 1903	Deadwood and Lead, S. D.	Hon. J. H. Richards,	Boise, Idaho.
7th	Aug., 1904	Portland, Ore.	Hon. J. H. Richards,	Boise, Idaho.
8th	Nov., 1905	El Paso, Texas.	Hon. J. H. Richards,	Boise, Idaho.
9th	Oct., 1906	Denver, Colo.	Hon. J. H. Richards,	Boise, Idaho.
10th	Nov., 1907	Joplin, Mo.	Hon. J. H. Richards,	Boise, Idaho.
11th	Dec., 1908	Pittsburgh, Pa.	Hon. J. H. Richards,	Boise, Idaho.
12th	Oct., 1909	Goldfield, Nev.	Hon. J. H. Richards,	Boise, Idaho.
13th	Oct., 1910	Los Angeles, Cal.	Dr. E. R. Buckley.	Rolla, Mo.
14th	Oct., 1911	Chicago, Ill.	John Dern,	Salt Lake City, Utah.

¹Temporary.

²Passed to June, 1900.

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CALIFORNIA



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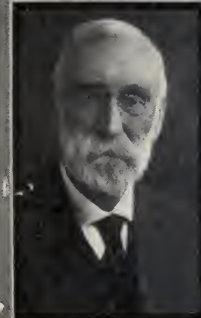
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CAPORELA

REPORT OF THE PROCEEDINGS

OF THE

Fourteenth Annual Session of the American Mining Congress.

Chicago, Illinois, October 24-28, 1911.

TUESDAY, OCTOBER 24, 1911.

Opening Session.

2:00 O'clock P. M.

The Fourteenth Annual Session of the American Mining Congress, held at Chicago, Illinois, October 24-28, 1911, was called to order by Mr. C. M. Moderwell, Chairman of the Local Executive Committee, Tuesday afternoon at 2 o'clock.

Invocation by the Very Reverend Dean Walter T. Summer.

MR. MODERWELL: Gentlemen of the American Mining Congress: I make my appearance before you today because I happen to be connected with the local arrangements committee. Our work is practically done, except that we want to see to your comfort while you are here, and see that you have your share of pleasure and do your share of the work.

We all greatly regret the serious accident which prevents Governor Deneen from being with us but we are glad that he has sent as his personal representative, Dr. H. H. Stoek, Professor of Mining Engineering, University of Illinois, who will now welcome the delegates on behalf of the Governor and the state of Illinois.

DR. STOEK: The position of a substitute speaker is always an unfortunate one, for those who must hear him as well as for the substitute. In the present instance the substitution is particularly unfortunate and regrettable as the Governor of Illinois, who was scheduled to welcome the American Mining Congress to the state, is prevented from being present by illness and injury.

As most of those present know, about two months ago Governor Deneen broke his leg while attempting to save others from being injured and has since then been confined to the house. He was, however, recovering nicely and confidently expected to address the Congress in person until four days ago, when he slipped and again wrenched his leg so severely as to materially increase his period of confinement to the house. He has therefore, delegated me to bid you a most cordial welcome to the state of Illinois and to express his hope that the Chicago session of the American Mining Congress will be the most successful one in its history and one at which measures may be inaugurated that will work for the advancement of the mining industry throughout the world.

Governor Deneen expected to speak upon recent legislation in Illinois affecting the conservation of life, resources, property and the rights of employer and employe. It is his desire that I outline to the Congress what has been done in Illinois during the past three or four years in attempting to solve some of the problems connected with the coal industry.

Speaking in very general terms the geological conditions in Illinois are similar to those in the other middle west states and not materially different from those in western Pennsylvania, West Virginia and Alabama in so far as they affect the technical problems connected with coal mining. This similarity of natural condition means similarity in the mining problems and suggests at once the great desirability of similarity and uniformity as nearly as local conditions will permit, in the legal regulations surrounding mining, so that no one state may be placed at a disadvantage on account of the legal restrictions placed upon mining in that state.

It is possible that some of the delegates to the Congress do not realize that according to the reports of the geological survey, Illinois ranks third among the mineral producing states. For many years she held second place as a producer of coal and is still a strong competitor with West Virginia for second place, moreover much of the coal produced in Illinois is utilized within the state and an economic factor of considerable importance. Again Illinois is second in the list of producers of zinc spelter and second in the production of petroleum, and what may surprise many, it ranks third as a producer of pig iron. The iron and steel industry that is rapidly developing around the southern end of Lake Michigan bids fair to make Chicago and its suburbs a second Pittsburgh. These statistical facts are mentioned, not in a spirit of state-praise nor to draw invidious comparisons with other mining states, but to emphasize the fact that mining problems in Illinois are being studied not only from a theoretical standpoint but the investigations are being carried on in a region where mining is a very important industry and by men who are interested in the subject because of the lives at stake and the capital invested.

It has been conclusively demonstrated that it is practicable, in Illinois at least, to have a commission composed of parties vitally interested in the industry suggest to the legislature laws that are acceptable to the miner, the operator, and the public. These laws may not be entirely satisfactory to either of the three parties interested but they are acceptable and they should not give rise to the same controversies as laws that are proposed by either of the three parties without regard to the wishes of the others.

Three years ago the Forty-Sixth General Assembly of Illinois had before it some forty separate mining bills, some proposed by the miners, some by the operators, but none acceptable to both parties; and in consequence the mining committees of the senate and house were at a loss to know which bills to accept. Late in the session when it appeared as if all mining legislation would fail miners and operators compromised upon two measures, one providing for the appointment of a commission to investigate mining conditions and to revise the mining code of the state and another providing for the establishment of a Department of Mining Engineering at the State University. These two laws may seem like a meager output for a legislative session, but each represents a basic principle and need in the mining industry, and I believe those who arranged and agreed to the compromise laid a wiser foundation even than they imagined. The first law recognized the possibility of uniting apparently diametrically opposite elements by consultation and conference and the results of two years' work have shown this principle to have been a sound one. The second law recognized the necessity and value of scientific training and investigation in connection with coal mining, a fact too long overlooked and unrecognized in the United States.

The Mining Investigation Commission was composed of nine members appointed by the Governor, three representing the operators, three the United Mine Workers and three the general public, no one of these latter three could be identified or affiliated with the interests of either the mine owners or the coal miners, nor dependent upon the patronage or good will of either one, or be in political life. Governor Deneen appointed as representatives of the miners and operators those

who were recommended to him by these respective organizations and those representing the general public were nominated jointly by the miners and operators so that the commission was absolutely free from political bias and neither the miners nor the operators could claim that their interests were not fairly represented upon the commission as they had entire freedom in the selection of their own representatives and an equal say in the choice of the representative of the general public. The commission first made a compilation and careful study of practically all of the coal mining laws of the United States, Canada and Great Britain, and in its subsequent work constant reference was made to all laws that had been passed, in an effort to combine in the Illinois law the good features of all of these other laws. In addition to the examination of laws from other states, certain investigations were carried on to determine technical data that were not available. As a result of these investigations a number of separate laws covering different phases of the question were unanimously reported to the legislature and all of these were passed practically as suggested by the commission in so far as they concerned the regulation of the mines, the only changes made being items of administration and not matters affecting the security of life and property. Time will not permit, nor is this the place to go into great detail concerning these laws, but a few of the leading requirements that indicate an advance over previous legislation may be of interest.

Immediately after the disaster at Cherry a law was passed requiring the installation of fire fighting appliances, telephones, and other signalling devices, providing for a regular fire drill and for the fire-proofing of shafts. A Mine Rescue Station Commission was established and this commission now has three fully equipped stations, one in the northern, one in the central and one in the southern part of the state where men are always on duty subject to call in case of accident and where men are being trained in the use of oxygen helmets and other fire fighting appliances and in rendering first aid to the injured.

The complete revision of the mine laws as passed by the forty-seventh session of the legislature fixes standard sizes of black powder, limits the number of shots that can be fired, prohibits any inflammable structure within two hundred feet of the head of the shaft, increases the frequency of mine inspection, greatly enlarges and clearly defines the duties of mine inspectors, provides refuge places for the men at the foot of the shaft, requires men to be checked in and out of the mines each day, and in general aims to state clearly and distinctly the duties of all those connected with the mines.

A separate law regulates the drilling of oil and gas wells and provides for the mapping of the same. Another law provides for the investigation of mining conditions in the state by the State Geological Survey and the Department of Mining Engineering at the State University acting in co-operation with the Federal Bureau of Mines. Authority was also given for the establishment of miners' and mechanics' institutes throughout the state but failure to provide funds to carry on this work will delay its organization.

These laws indicate an attitude of progress and a desire to improve the conditions under which mining should be carried on in the state in so far as those conditions can be regulated by legislative action.

The improvements required by these laws are all highly desirable and are suggested by good engineering, but they mean a necessary increase in expenditure and an added burden to an already heavily burdened industry. While many other improvements could undoubtedly be suggested there is a point beyond which improvement cannot be made by legislative action without becoming confiscatory of the property. In the opinion of many, that point has been nearly reached in some states in the economic side of coal mining is amply provided for elsewhere on the program but several paragraphs from the report of the mining investigation commission apply very aptly at this

point, not only to conditions in Illinois but to many other states as well and I shall therefore, quote from that report, which says,

"The number of shipping mines in Illinois is greatly in excess of the number required to supply the maximum demand for Illinois coal. This has resulted in the actual annual average running time of all mines operating in Illinois for several years past being materially less than two hundred days per year. With a more reasonable adjustment of mining capacity to the greatest possible maximum demand (which is entirely feasible in so far as the commercial or physical considerations are concerned) it should be possible for the mines to be operated an average of at least two hundred and fifty days per year. The result of this condition is that all of the mine employes in Illinois (now about seventy thousand) are idle on an average at least sixty days per year more than need be if there were a reasonable adjustment of mining capacity to the fullest trade requirements.

"Stated in another way, the entire force of mine employes is idle one-fourth of the time they should be able to work after making all allowance for unavoidable idle time. This has the same effect as though one-fourth of them were idle all the time. In other words, fifteen thousand men, in effect, are idle throughout the entire year, but held in the industry by the attraction of the excessive number of mines annually in operation. This is an enormous economic waste. If productive capacity were reasonably adjusted to the fullest requirements, it would still be possible to spare fifteen thousand men from the industry to engage in other occupations where their labor might be needed. This is a severe loss to mine employes. Even when piecework or day wages are high, annual wages are low.

"It is also a fact that in mines idle a great part of the time a greater proportion of the outlay for labor is wasted in non-productive work during idleness instead of being applied to productive work in getting out coal. It is a further fact also, by reason of the frequency of periods of long idleness, that coal which might be mined under steadier work is lost by reason of caving roof and other unavoidable conditions arising out of idleness."

The advisability of having more uniform mining legislation in states competing in the same market was never more urgent than at the present time, especially in order that the burdens of production may be equally borne. Governor Deneen recognizes this condition and in the personal invitation which he extended to the executives of the coal producing states than Illinois will enact legislation looking to he says, "It is almost certain that within the next few years other coal producing states than Illinois will enact legislation looking to the better operation of the industry. It is very important that these enactments, so far as practicable, tend toward uniformity. To produce results in that direction co-operative effort is necessary. A rare opportunity now offers, it seems to me, for a conference among ourselves and with these gentlemen who are deeply interested in this subject and have given it much consideration, and who can be most helpful in securing the adoption of systematic co-operation, for the purpose of arriving at some sound conclusions that will assist us in the formulation of a general plan for future legislation in our respective states."

While each state must of course, suit its laws to its local conditions, there are certainly broad general principles affecting the entire coal mining industry that can be the basis of legislation for each State so that the mines in each state may enter the competitive race more nearly on an equal footing than they do at the present time.

Next in importance to more uniformity in legislation is a campaign of education of the general public in regard to the coal industry. As is the case in every other industry the pre-eminent financial successes are the gage by which the general public measures the industry and it knows nothing of the many who have fallen by the wayside nor of the average conditions prevailing in the industry as a whole.

An investigation and publication broadcast of the amount of capital invested in the industry, the cost of mining and marketing coal, in fact a systematic investigation by a commission or committee should do much to remove the prejudice that many now have against the coal operator and miner and should give a basis for the settlement of disputes between employer and employe for which there is now very little non-partisan data.

MR. MODERWELL: It now becomes my pleasure to introduce to you Mr. John Dern, the President of the American Mining Congress and to turn over to him the gavel of this meeting. (Applause.)

THE PRESIDENT: Gentleman and Ladies of the Convention: It is indeed very gratifying to me as your presiding officer to see such a large representative delegation here this afternoon. I have attended a good many of our congresses in the past, but it is usual that our first session is rather sparsely attended, owing to the fact that many delegates come a great distance. I have received several telegrams today from my own state, saying that the delegates are en route, but have not yet arrived, and will not until tomorrow.

In behalf of the Congress I want to thank Dr. Stoek, the representative of the Governor, for his cordial address of welcome. My response shall not be made at this time, as I shall speak to the convention somewhat later. As you have noticed from our program, a great many members of the Congress are listed for response. We have had at various conventions representatives from other governments, both from the European governments and from South America. We have with us today a representative of the great empire of Britain, whom we bid welcome to this convention. I have the pleasure of introducing to you His Britannic Majesty's Consul General, Mr. Horace Nugent, who will now address you.

MR. NUGENT: Mr. Chairman and Ladies and Gentlemen: Permit me as representing His Britannic Majesty's Government to express to you my hearty appreciation of the cordial words spoken by Dr. Stoek to the delegates attending the convention from beyond the borders of your great state. It had been hoped that the British ambassador at Washington would be able to favor us with his presence, and to address the meeting, but Mr. Bryce, to his great personal regret, found that the exigencies of his official work and some previous engagement would prevent his coming to Chicago at this time. Now, gentlemen, you are all aware that Great Britain has been singularly blessed in mineral resources; in fact, it is merely to state a truism to say to you that whatever success has attended our commercial and industrial enterprises has been very largely due to this fact. Therefore, under these circumstances it is not to be wondered at that we, both as a government and as a people take a profound interest in all concerning the mining industry, and not only from an economical point of view, but also from the side of the welfare of the miners. During recent years a large amount of legislation has been enacted in Great Britain, whereby we trust and hope many of the more satisfactory problems concerning the welfare of the mining community may be partly solved. Allusion has already been made to some of these enactments, and I have no doubt that during the sessions of the Congress further allusions will also be made to them. It may possibly be that you may benefit to some extent by our experience in this respect, although no doubt the conditions obtaining in the United States are in many respects very different from those in the United Kingdom. On the other hand it is perfectly certain to say that we have much to learn from you, and I therefore look forward with great personal satisfaction to attending the sessions of the Congress and trust at their close to transmit to my government a report of the proceedings, which proceedings I need hardly add are, I am convinced, sure to be fraught with much interest and benefit. (Applause.)

THE PRESIDENT: Gentlemen, the American field of mining has offered many opportunities to our fellow citizens of the United

States, but a great deal of money is often required to develop and open up the treasures of the earth. Oftentimes our American prospector or mine owner who has not the requisite amount of money to open his mine and failing to interest sufficient capital at home, has gone across the pond to interest the people of Great Britain and France, and a great deal of their money is being invested all over our western field. Some of our very best mines are controlled by the people of England and of France. Their engineers rank high with our splendid force of engineers in the United States. They are always keenly looking after the interests of the people of their own country, and when those governments send representative men to our conventions to see what our engineers and mining men have to say with reference to their particular field, they are keen to learn and to observe and to be able to report to their respective governments. We have with us today a representative of the French government, and it is my pleasure now to introduce to you Monsieur Jean De Pulligny, Director of the French Mission of Engineers to the United States.

MONSIEUR DE PULLIGNY: Mr. President, Gentlemen: It is both a great honor and a sincere pleasure to address such an audience as is now before me, which includes most eminent representatives of nations, states and of the mining industry. It has been asked that I should speak a few words in behalf of French engineers and of the French secretary of state for public works whose delegate I am this evening, but it is with great diffidence that I have accepted the honor bestowed upon me.

Indeed, I am fully alive to my own want of experience as an English speaker, and I cannot even claim your sympathy as a miner, for I belong to that branch of engineering connected with public works in general and with the building of ports in particular.

Nevertheless, thanking very heartily the officers of the Congress for their confidence, I shall take up daringly the pleasant burden which they have so graciously laid at my feet and try to express in a few words what may be the principal ideas of an old-fashioned continental man about the vital problems put under your consideration.

A greater safety for miners, more complete recovery of the coal and better methods of ore reduction, for the cost of all that, who shall pay the bill? What must the government do and what must it not do? Such are, if I am not mistaken, the fundamental questions which the mining men of America are facing on their path.

These problems we have also found before us in the Old World, and long ago. I do not only speak of the French mining men, but also of the German, and of our English cousins, which have done large gallery work like good moles, and gathered a fair experience of metal and coal mining. I say that we have met these problems and I can add that we have worked out appropriated solutions—appropriated to our circumstances, which are vastly different from yours certainly, but, all the same, I think that our work may be of some interest to you.

I feel certain that you have already begun studying it and that you will keep on that study.

The inquiries that private undertakings have, up till now, started separately, you will now work out methodically and with the powerful resources supplied by co-operation.

Your Bureau of Mines will verify and continue the theories and experiments of the French engineers, from Berthelot to Vieille, inventor of the smokeless gunpowder, on temperatures of ignition and safety explosives; your Bureau of Mines will verify and continue the experiment of my comrade, Engineer Taffanel, who has in charge the experimental gallery at Lievin, Pas de Calais, where he studies the spreading of explosions in coal dust and the sudden stoppage of such spreading by automatic showers of shale dust.

In regard to miners' safety, you will find ample and careful regulation in our laws. It has always been designed in accordance with

the mine owners and its working is supervised by delegates of the workmen themselves, so that safety is not only assured, but confidence is won. And I may say that the practicability of this scheme is firmly demonstrated by long years of smooth and peaceful working.

On all these points your Bureau of Mines will gather most useful and complete information, including facts relating to the important subject of the hook-worm disease from our "Comite des Houilleres," which is a private board maintained by the French mine owners and from our public "Board of Mines," administered by an eminent body of Government engineers who enforce the compliance with safety regulations and the observance of proprietary rights of the state.

Many from this body of engineers have been authorized by the Government to enter the service of mining companies and practically most of these place such engineers at the head of their undertakings.

Such seem to be, gentlemen, the principal sources of practical knowledge open to you: Experience of the Old World, properly adapted to widely different conditions, and also new investigations conducted by the Bureau of Mines in your experiment station or in the mines themselves.

When the conclusions resulting from long, careful and unprejudiced studies shall be laid before the government and the public at large, showing a just consideration of the coal production as a private business as well as a public function, it is impossible that your economic necessities should be misunderstood any longer.

Especially in this country the economic necessities force their own consideration before any others, and with this fact we need not be impatient, for it is only the assertion that a man must first secure the means of living before he can do anything else.

Perhaps you must have patience and wait a little before you can attract due public attention to the mining interests.

There are here many more questions clamoring for that attention than can promptly receive it, and the life of the American nation is so full of things needing to be done that it is impossible they should all be taken up and disposed of in the most desirable order.

Now, gentlemen, I will no longer trespass upon your time. There is, however, one thing that I am still bid to do. It is to apologize for the smallness of the offering which I bring you this afternoon, should you test it for quality or even for quantity. But this last defect you will perhaps easily excuse, as I have heard from wise people that a great deal of excellent advice is somewhat worse than wasted by being supplied, even to eminent gentlemen, in too great quantities or under inappropriate circumstances.

Therefore I will say no more, except to return my sincerest thanks to one and all of the present members for the honor that has been bestowed upon myself.

I also wish to congratulate you most heartily for having wisely understood that only by co-operation can you or any set of men hope to exert the full and legitimate influence of the large interests which they represent.

And keeping the best for the last, I feel happy to express the hope that this session of the American Mining Congress may, as it has been said, open a new and prosperous era to the mining industry of the United States, the largest of civilized lands, the biggest of civilized nations! (Applause.)

MR. HORACE J. STEVENS, Michigan: The gentleman from France has apologized for the scantiness of his contribution, and I think in testimony of the appreciation of this gathering it might be said that we thank him most heartily, not for the scantiness, but for the value, and we especially appreciate this contribution as coming from the constituted representative of our first and earliest friend among the nations of the world, the Republic of France. (Applause.)

THE PRESIDENT: We have a distinguished gentleman with us representing Bolivia. The investment of the capital of the United

States has been more or less limited as yet in that great southland, but with the completion of the Panama canal, it is only a question of a very limited time when American capital will be invested extensively in the southern republics, and their large treasure vaults opened for the benefit of the entire world. I have the pleasure to introduce to you Mr. Frederick W. Harnwell, Bolivian Consul.

MR. HARNWELL: Mr. Chairman, and Gentlemen of the Congress: I was asked by the Bolivian minister to be present at the deliberations of this Congress, with the idea that Bolivia might profit largely by the wisdom of this convention, and at the same time I was also asked by your honorable secretary to respond to an address of welcome. I told him at the time that being a native of the United States I was quite unfamiliar with mining conditions in Bolivia and felt my inexperience and lack of knowledge, and that my feelings prompted me to remain silent. Up to the time I came here a few moments ago I thought my reason for remaining silent had been satisfactory to your secretary, but it seems that it was not. I attempted to decline because of my lack of familiarity, but in that declination I was keeping to myself what the Bolivian minister said in his letter, that he felt a very keen appreciation that this Congress had seen fit to ask Bolivia to be present and take part in the deliberations. Probably many of you know much more about the mineral wealth of Bolivia than I do, merely a consul in Chicago, but I know that the wealth of Bolivia is in her mines, and that she is enormously rich in mineral deposits. The appreciation of the minister at Washington is very well placed, because I hope after the adjournment of the Congress to be able to report to him and to furnish him with the deliberations which may aid in giving to Bolivia the experience and the knowledge that has come to this wise body of men along exactly the line of Bolivia's greatest resource and wealth, and believe the development of our mineral deposits will result not only in increasing our country's wealth, but I have no doubt it will increase the wealth of many that are connected with this Congress. In my opinion the experience of men operating mines in the United States along that great central backbone of the United States, which is likewise the backbone of the South American continent, has been obtained where the conditions must be similar, the obstacles to overcome identical, so that your experience is of great value and results can be obtained by you through your learning and experience quicker in Bolivia than by any similar body of men. Gentlemen, I simply want to say in conclusion that not only do I appreciate the honor conferred upon me as representing Bolivia to express my appreciation, but in that the paramount expression of appreciation is that of the Bolivian Government. (Applause.)

THE PRESIDENT: Gentlemen, when we western metallurgical miners speak of the different mines either of gold, silver or lead, being mined in the innumerable camps in Colorado, New Mexico, Arizona, California, Utah, Idaho, Nevada, Oregon, Washington, and up to the northern boundary of the country we immediately think of this country as the most prolific in pouring out its wealth from the mother earth. We Americans under our present apex law lay claim to extra lateral rights as we have the property over there; we even possibly go so far as to claim the apex right in Canada and go beyond the line. Of course, their law is according to vertical planes, and they will not permit us to follow the apex into their ground. When we are unable to follow the apex we will go over and acquire it in another way, but while there is a boundary line between the two nations, both belong to the English speaking race, and when you get over there you hardly know when you have crossed the line, for our interests are identical and our objects mutual. We have today with us a representative of the Canadian Government, and I take pleasure in introducing to you Mr. Thomas W. Gibson, Deputy Minister of Mines, Toronto, Canada.

MR. GIBSON: Mr. President, and Ladies and Gentlemen of the American Mining Congress: I feel honored in being asked to say a

word in behalf of my native country, and I wish at the outset to express on behalf of the Canadian delegation to this Congress our appreciation and thanks for the very cordial welcome which has been so heartily expressed by you, Sir, and by Dr. Stoek. This Congress has met for the consideration of weighty and important problems, some of which are peculiarly connected with the conditions in the United States, and some of which affect mining and the mining industry wherever situated or carried on, and I trust that on behalf of Canada, and more particularly on behalf of the Province of Ontario—because I come to you accredited by the government of the Province of Ontario rather than by the government of the Dominion of Canada—I shall be able to carry away from the deliberations and discussions of this Congress much information which will be useful and beneficial to my own land. Broadly speaking, the conditions under which we in Canada live and labor are the conditions under which you live and labor. The mineral resources of Canada are many and varied. We have practically every metal in commercial quantities except perhaps tin, and we have very many of the non-metallic and useful substances. We have coal in Nova Scotia on the Atlantic coast, and we have coal in British Columbia on the Pacific coast; we have it in Alberta and Saskatchewan, and much of it is of excellent coking quality. We have iron, the other pillar upon which rests the fabric of modern industrialism, in all the provinces in considerable quantities, much of it yet undeveloped. Of the precious metals we have gold in the Yukon, in British Columbia, in Nova Scotia, and in Ontario. In Ontario the latest discoveries of gold in what is known as the Porcupine district have given rise to a very great deal of interest. The gold there is found in veins of quartz, and some of the surface showings have been spectacular to a degree. That district is not yet producing bullion, but doubtless it would have been ere now had it not been for the disastrous forest fires which swept that country in the month of July, and which destroyed the works at some of the most important and advanced mines.

In silver Canada stands third among the silver producing communities of the world; Mexico is first, the United States is second, and Canada is third. Mexico produces 33 per cent of the world's output of silver, the United States 26 per cent, and Canada 15 per cent. This production of silver is largely due to the phenomenal richness of the silver mines at Cobalt. These mines were opened in 1904, beginning with a production in that year of about 250,000 ounces, and have steadily increased in output until in 1910 the production was about 30,000,000 ounces. For the present year the production will be considerably greater, so that from the opening of those mines to the end of 1911, we will say, the production of silver from that camp will not have been less than 125,000,000 ounces. I have no doubt that many of you are familiar with the mines of Cobalt, as they have drawn the attention especially of silver miners from all over the world. Indeed, the camp is one of the mining phenomena of the 20th century.

In copper we have large resources in British Columbia and in Ontario. In British Columbia the copper is associated largely with gold; in Ontario with nickel; and the nickel-copper mines of Sudbury are the chief source of copper produced by the province of Ontario. Copper pyrite occurs in large deposits in the province of Quebec. The nickel mines of Sudbury are the most important in the world, and now produce from 60 to 70 per cent of the entire supply of nickel required by the commercial and industrial world. The lead and zinc resources of British Columbia are extensive. In the non-metallic substances Ontario and Quebec have large deposits of mica of a very high quality. This amber mica, so-called, is noted for its flexibility and its resistance to electrical currents, and is therefore in great demand by the manufacturers of electrical apparatus. Quebec yields the best asbestos in the world, and supplies the markets of America. We have large deposits of iron pyrites, used in the manufacture of sulphuric

acid. We have probably the largest deposits of corundum known. Corundum, as you are aware, is used as an abrasive; it is the active principal in emery. We have graphite; we have talc and feldspar and gypsum and phosphate of lime; we have arsenic in quantities sufficient to poison the whole people of the United States, Mr. President, if we desired to enter upon a campaign of that kind, and a little left to attend to our own people. We have petroleum and natural gas and salt. In fact, the mineral industry of Canada, along with the other primary industries of agriculture and lumbering, forms the main stay of the social fabric so far as its material and industrial side is concerned.

We have before us many problems in Canada. The United States has been longer in business than we have. It started earlier, and it has arrived at a more advanced stage in its national history, but we believe, Mr. President, that the 20th century is Canada's century. We have within the borders of our land vast areas of agricultural soil second to none in the world. We have great forests; we have practically inexhaustible mineral wealth, and we have a people whose moral, mental and physical characteristics place them on a level with any other nation in the world.

Having these raw materials then out of which to form a nation, we look, not only with hope but with confidence, to our future. We purpose to work out upon our side of the boundary line many of the same problems that the United States has worked upon, and some of which it has solved on the southern side of the line. We desire to emulate your successes. We desire to profit by your mistakes. If we can learn anything from the experience of the past or from the observation of the present, we can learn it in just such meetings and such congresses as this, where are brought together the experience and the knowledge and wisdom of men engaged in a practical industry such as mining.

Sir, standing here as I do, I am conscious that though I am on foreign land, I am not in the midst of an unfriendly people. The people on both sides of the line speak the same language, they think the same thoughts, they are engaged in the same occupations, and we in Canada hope that in working out the destinies which lie before us as a country we shall do so in friendly and harmonious relations with the great people to the south of us. We have had political questions of recent days which I have no doubt have given rise to a searching of heart on this side of the line, as well as on our side of the line, one of them being the question of reciprocity in the exchange of natural products. This was approved by the Congress of the United States, but was rejected by the people of Canada. Now that rejection, I venture to say, was not due to any unfriendly feeling or want of regard for the people of the United States. Notwithstanding the apparent want of harmony, so far as that question is concerned, I believe that underlying all these surface conditions there is a great body of amity and friendliness common to both sides of the line. (Applause.) And it is under such conditions and with a spirit of that kind prevailing with us, and I am sure prevailing with you, that we desire to carry on the work of developing the mining, the agricultural, the lumbering and the other industries in which our people are engaged. Mr. President, I thank you very heartily for the cordial attention which this assembly has given me, and on behalf of the Canadian delegation I express my gratitude for the way in which we have been received. (Applause.)

THE PRESIDENT: The population of Alaska is not very great, not a great many of our people of the different States have traveled in that far northern country, the developments so far are very limited, and yet perhaps there has been more said and written in our papers and magazines the last few years about Alaska than of any other state in the Union, and it is fortunate in a way that Alaska is on the top of the list, with reference to responses by the delegates or representatives from the different states and territories. I now have the pleasure to introduce to this convention Mr. George E. Baldwin, of Valdez, Alaska.

MR. BALDWIN: Mr. Chairman and Ladies and Gentlemen: At some future time during the deliberations of the American Mining Congress, I am scheduled to make a talk on Alaskan subjects. This afternoon I can only express to you my thanks and my appreciation, not only for myself, but for the rest of the Alaskans who are here, of having the pleasure of meeting with you. I don't care to take up any more time just now, but shall ask your attention and consideration to what we shall have to say when the Alaskan problems are discussed here before this meeting, because we in Alaska look with great hope and expectation for good returns from the deliberations of this Congress, knowing that you are a friendly people to us and having been so in the past I am satisfied you will be in the future.

THE PRESIDENT: We will now hear from Mr. A. W. Estes, Little Rock.

PROF. A. H. PURDUE, ARKANSAS: Mr. Estes is not present, but the Honorable Ransom Gulley, of Little Rock, has been conscripted to fill his place.

THE PRESIDENT: We will hear from Mr. Gulley.

MR. GULLEY: Ladies and Gentlemen: Our President says Arkansas. By solemn legislative act we are Arkansas (saw). (Laughter.) My friend, Professor Purdue, of the University of Arkansas, has said that I was conscripted. I was a confederate soldier four years, but I was a volunteer. I have never been conscripted in my life.

As I am expected to respond to the address of welcome, I want to say to you that we thank you from our very hearts for the cordiality, for the handshake, for the smile that has been given us on every hand, because we feel that we are at home in Chicago. (Applause.) The Queen of Sheba said after she had visited King Solomon that half had not been told her. The half of this Mining Congress had not been told me before I came here. I want to say, and my very heart inspires the thought, I want to say a word of friendly greeting to my neighbor over in Canada. Notwithstanding your rejection of the doctrine of reciprocity, we speak one language and I endorse your sentiments and I want to tell you that we love you and I want to say to my English brother today that I always did love my mother. England was the mother of this country. We have gotten a little too large for the old lady to help us. Maybe she let us alone too long. I want to say to my brother from France the first speech of my life, the first declamation of my life was delivered in a log school house in North Carolina, and it was a eulogy upon LaFayette. His name ever has been a household word in all this country. (Applause.) To my brother down here in Bolivia, South America, I feel that we are about half cousins. I am from the southern part of the United States. But, my friends, I want to say another thing, there is no North, there is no South, nor East, nor West in these United States since the Confederate general, Joe Wheeler led the boys in blue and the boys in gray up San Juan Hill and captured Santiago beneath the American flag. There is no North and no South and no East and no West. (Applause.) I feel just as much at home here as I do in Little Rock. I am glad to be here and thank you for listening so attentively, although my friend, the Professor, said I am conscripted. I am a volunteer. (Applause.)

THE PRESIDENT: I shall next call upon Mr. W. N. Searcy, Silverton, Colorado, to respond.

MR. SEARCY: Gentlemen of the American Mining Congress: I desire to express to you the deepest and most heartfelt gratitude on behalf of the people of Colorado for the very gracious reception you are giving us. Perhaps I feel this greeting a little more because my old home in my boyhood days was south of Springfield, in the state of Illinois. I feel that perhaps many of these delegates who come from the West, whether from Colorado, Arizona, California or Nevada, I feel that many of them in journeying from the mountains across the plains to the city of Chicago must feel that they are coming home. You can hardly pass through a state in traveling from the mountains

to the East but what some western man will remark that here his boyhood days were passed. That leads me to remark that the relation between the West and the East is after all that of child toward parent and parent toward child. The sons of the eastern homes have gone to Colorado, to Nevada and to California, to build up those commonwealths, to seek their fortunes, and to undertake to build states modeled after your commonwealth of Illinois. As has been so forcibly and eloquently stated, I hope that this feeling arising out of mutual interest may be such that in this mining convention and in all the conventions this organization shall hold in the future, there may be no East and no West and no North and no South.

I believe that the city of Chicago has outgrown not only the expectations of the western people who left here years ago and are now returning to visit you. It has not only outgrown their expectations, but I am not sure but that it has outgrown even the conception of its founders; destined some day I believe to become the greatest city on the American continent and the greatest city in the world. I desire to make the suggestion that I believe the city of Chicago is too modest. I believe it would not be immodest on the part of this great city now if it would undertake to put signs on its street corners so that strangers undertaking to pass along the main thoroughfares may read as they run, for we have got to run when we cross the streets of Chicago. (Applause.)

On behalf of the people of Colorado we not only thank you but like the Missourians in their kind and courteous hospitality, we would like to say to you that now you have entertained us and are entertaining us, and we want "you-all" to come sometime and see us. Colorado cannot offer such a great city in which to entertain you, such wondrous sky scrapers; it cannot offer to you such sights of immense traffic and industry, but I believe it can offer to you the most heartfelt greeting and hospitality which will at least emulate the gracious reception you are giving to us. Colorado is preparing for you, Mr. Chairman, preparing for the people of Chicago, and the delegates of this convention to visit our state and make themselves at home. I shall not undertake to tell you the mineral wealth of Colorado, perhaps you know that as well as I, nor its wonderful agricultural wealth, but I do desire to tell you now that we are preparing a highway such as has not been seen in our country before, a thousand miles in length. We are extending from the city of Denver to all those cities at the foot of the mountains, then across the San Luis valley and over the great continental divide to Durango, then from Durango up to the summit of the beautiful city of Silverton, and then down the Ouray valley, and down to Grand Junction, back again up the Eagle River, and across the continental divide and down to the city of Denver. In undertaking to travel on this circle you will pass the healing springs of Colorado at Manitou, the Wagon Wheel Gap, Pagosa Springs, Glenwood Springs, the Waters of the Ouray, Idaho Springs, and we can only hope that as you journey over this highway through the state of Colorado every one of your ills may be healed, and you may come home happy and content. Beyond these healing waters you will be able to camp on the Rio Grande, catch trout, fry them under the spruce trees, and you will be able to gather the apples at Durango and Grand Junction and to eat peaches at Paonia, melons at Rocky Ford, and all the way around this circle you will pass through scenic grandeur such as the painter cannot reproduce nor the photographer bring back to you. One reason for responding this way to the very cordial reception which has been given to us, is to call your attention to the fact that in visiting our state, the people of Chicago will receive back some of this hospitality, and find means of escaping from the summer heat for up in the mountain towns summer heat is unknown. At the very time our newspapers report deaths in August and July, because of the oppressive temperature in the East, perhaps the frost will be glistening on the blades of grass along the streams. Now I

speak of these things, not to boast of my beloved state, but as an answer to the hospitality which has been given to us, and which has made us feel at home, and I speak of it in the sense of saying to these people who are so kindly entertaining us to express our appreciation of this wonderful hospitality and to say that now that we have visited you we will try to respond when you come to visit us. (Applause.)

THE PRESIDENT: A great many of you perhaps may think that it is rather singular to ask a representative of the state of Kansas to attend the Mining Congress, Kansas being considered strictly an agricultural and prairie state. But Kansas has great coal fields, zinc, lead, and other minerals, and in the true sense of the word is quite a mining country. We have a representative here from that state, and I am sure we will be pleased to hear from him, Dr. Erasmus Haworth, state geologist of Kansas.

DR. HAWORTH: Mr. President and Gentlemen. My heart is full of one phase of the subject which I hope properly belongs to this congress, and with your permission I am going to talk about four or five minutes on that subject. From time immemorial, a hundred years at any rate that I can remember, and I don't know how much longer, the mining school teachers of the United States have succeeded in getting this Congress to pass a resolution at every one of the sessions in favor of Federal aid to mining schools. That is as far as that has ever gone, and I have concluded that one of the reasons why it was so easy to get such a resolution through the various sessions of this Congress is because so little attention was paid to it, not enough interest even to vote "No." We have now succeeded in part in accomplishing one of the objects of the organization of this Congress in the way of Federal recognition. All of us remember in the early days, ten, eleven or twelve years ago, one of the strongest efforts put forth by practically all the members, was along the line of having a department of mining organized by the government with a member in the cabinet of the President of the United States. This has been accomplished in part, insofar as we have organized a Bureau of Mines, and Federal recognition to that extent has been given. I believe that the future welfare and prosperity of that Bureau of Mining, which I most earnestly hope they develop until ultimately it becomes a department of mining (applause), will be fostered more by the establishment of a direct connection between the government of the United States and the various institutions of learning which may be scattered here and there throughout the United States than by any other one individual agency.

I have given a great deal of thought to this subject. I have tried to draw a comparison in history, and we have a fairly good parallel, it seems to me, in the great department of agriculture with the almost innumerable agricultural schools here and there throughout the United States. Now, it is common knowledge to every one that early in the last half of the century which has just closed, Federal recognition of those agricultural colleges was given, and all of you today I presume will agree with me when I say, it seems to be a true statement, that the stability that has been given to that cause through these various educational institutions has been the most powerful of any one factor in bringing about the great recognition of the agricultural interests of America that we have today.

Only a few weeks ago in Kansas City was held the annual session of our great conservation congress. The president was the editor of of an agricultural paper, and the speakers, almost without exception, were men connected with the agricultural industries of America. In the session from beginning to end, those taking part in the discussion were representatives of these institutions, and finally we were told that there has been organized recently a national bureau called the soil fertility bureau, which has among its membership all of the great men of America, and we understand the aim of this bureau is to foster agriculture. Its purpose is simply this, to put a government official, paid by the government of the United States, into every county in all the broad

domains of the United States of America. Now, the agriculturist and his associates have been discussing this subject, and they have been preaching it in season and out of season, and more than that, they have been acting upon it. They have been working with the greatest zeal that any set of men have ever worked within the United States, so far as I am able of judging, in order to get the government of the United States to do something to recognize them and help them—give a million dollars today, five million dollars tomorrow, and twenty million dollars next year, and so on.

The time has come, gentlemen, practically right now, when a large proportion of the members of the congress of the United States simply go down to Washington feeling that they must vote for a larger appropriation for the agricultural department than was voted the year before, because the people want it.

On the other hand, the gentlemen interested in the mining industry have been doing practically nothing in that line. We stagnated, so to speak. All of you know that in order to get any public recognition we have got to be stirring around and doing something. I want in addition to make the statement of fact, which everybody who has ever been to Kansas knows, that we are exceedingly grateful for everything we can get, and we are always hoping to get more. I want to state that it is my unbiased, deliberate and individual opinion that there is no other one thing the American Mining Congress can do, which will be one-half as powerful a factor in building up the future development and everything which we want to accomplish, as taking hold of this matter and getting governmental recognition of some form of institutions wherein we may have the fundamental principles of the great industries that we are interested in taught and developed from year to year, so that we will have at least one point of stability in the enterprise and undertakings that we have established.

Now, just one word further by way of comparison. I don't care what an organization is, it must have something to make it stable. What is the history of this organization? We have had this congress called year after year with nothing about it to give it stability, nothing about it which tends to permanency, except popular interest in the great mining industry. Some of our best friends in the organization realized eventually that something had to be done, and the Mining Congress corporation was formed so that we would have a certain element of stability and provide a certain central point around which all these other interests would gather. This matter to which I refer is simply another step along that line. We will have, if we get an appropriation made by congress from year to year, and thereby governmental recognition of the mining schools of America, a second factor of stability. We will then have something which is perpetual, something which could be called to the assistance of any and every move that the American Mining Congress might want to make in the future. I believe that no matter what we may try to accomplish in the future, whether it be the development of the Bureau of Mines into a department of mines and mining, covering every field of mining industry, or whether it be anything else that works for the good of the great American people, the upbuilding of the mining schools would give us a certain element of stability that we cannot get in any other way. Therefore, I hope when a resolution is presented here at the proper time to bring about Federal recognition of mining schools, that this Congress will vote "Yes" on that resolution, and that they will express their vote in so loud a voice that the sound will reach the ear of every member of the Congress in the United States.

Now, Mr. President, and ladies and gentlemen, down in Kansas in a mining way we are getting along very nicely. We are doing everything that we can in order to develop those industries of which we have a few. We mine lead, ore, zinc, coal, salt and gypsum, and are developing valuable oil fields. I want to say to you that Kansas is in favor of anything and everything that is good which this Congress may bring

forth, and you may look to us to help in every way that seems desirable. All you have to do is to ask us. I am referring now to the gentlemen who are interested in the great mining enterprises of the states. I thank you, Mr. President. (Applause.)

THE PRESIDENT: At a number of our former sessions I have been sorely disappointed in not greeting a delegate from the great mining state of Michigan, which perhaps has the greatest iron mines in the world, and which has boasted for years with every right of having the greatest copper mines, and held that title until Utah asserted itself and developed some which far outclass any of the Lake Superior district. Today we have, with us the Honorable John H. Jacobs, mayor of Marquette, Michigan, who will respond in behalf of that state.

MAYOR JACOBS: Mr. President and Fellow Members of the Mining Congress: I can only tell you what we are doing in my neighborhood, and how we are getting along, and what prospects we have of improving. Marquette, in Marquette county, is the center of our iron district in Michigan. It leads westerly to Gogebic, Menominee, Dickinson and Iron counties; the ore is shipped from Marquette and Escanaba, Michigan, Two Harbors, Minnesota, and Ashland, Wisconsin. The ores from the border line of Michigan nearest Wisconsin are largely shipped from the port of Ashland. Now Marquette county is one of the originals of the old iron counties of the United States. The iron business was well known in Marquette county as far back as 1854. The ore was then hauled by mules and horses from the mines to Marquette, a distance of about 12 miles. From 1854 to 1860 there were 3,115,600 tons transported in that way. Our enormous increase of tonnage since that time is best read in the figures, for there have been shipped, exclusive of the output for 1911, a total of 96,296,717 tons of ore from Marquette county alone. Gogebic county has shipped something like 56,000,000, and Menominee and Dickinson counties about 30,000,000 tons more. The grand total already shipped from the Lake Superior district up to the close of navigation in 1910 is 493,489,562 tons. During the past six years more ore has been discovered in Northern Michigan, Wisconsin and Minnesota than was supposed to have ever existed up to that time. Mining is being fast reduced to a science. Our shafts today are being built of concrete to make them safe and durable. The local managements include the best equipped men that technical training and experience can produce. Mine inspectors are appointed by our boards of county supervisors. These inspectors are familiar with all the details of practical mining, also the dangers incident to that hazardous calling, and their duties are to inspect the mine at least once a month to conserve the safety of the men employed in and around the mines. Some of the mines require the men before beginning work to sign a contract releasing the mines from liability in case of their injury or death through accident while at work, in return for which the companies stipulate certain payments graded to meet the degree of accident sustained, and the companies also agree to provide competent inspection of dangerous places. We have the very latest machinery of all kinds. The Pioneer Iron Company is manufacturing charcoal. The Cleveland Cliff Company is purely a mining company, which is now improving its water powers, and improving everything in such a way that everything is very cheaply done and very easily handled. One thing I want to mention, and perhaps a good many people here will be surprised when I tell them that we are manufacturing charcoal now in the city of Marquette, and from the smoke of the charcoal furnace we manufacture many, many different products, such as creosote, wood alcohol, rose-water perfumery, formaldehyde, white wine vinegar, sulphuric acid and many kinds of medicines. The great value of these products makes them finally the principal one and the iron the by-product. Between the iron and the wood the medicines are collected and then refined through the combination of both iron and alcohol, which are used to precipitate them in such a way as to make the different articles. We also make chloroform. It is simply won-

derful what is being done. When we first began our lake shipments of iron ore, our methods were so primitive in handling the same that it required from 12 to 14 days to load a 500-ton vessel. Today by more improved dock and other facilities we can load a 10,000-ton vessel inside of 4 hours. For the information of this Mining Congress I will read the following from the report of the mineral statistician for the state of Michigan for the year 1909:

The ore producers of the Lake Superior District had a record year in 1909.

The total of shipments was the largest in the history of the region and showed a gain of more than 70 per cent over 1908.

Notwithstanding a shortage of labor and the somewhat restless condition of general business, the work of producing and shipping iron ore proceeded with great vigor. Important discoveries were made and large bodies added to the total known ore reserves.

The figures below show the shipments by ranges including in Michigan, the Marquette, Menominee and Gogebic ranges, and in Minnesota, the Mesabi and Vermilion ranges.

The following table shows the shipments, by ranges, of Lake Superior iron ore from 1902 to 1910 inclusive:

Year.	Total, long tons.
1902	27,562,566
1903	24,271,761
1904	21,755,359
1905	34,252,115
1906	38,421,173
1907	42,170,878
1908	25,892,538
1909	42,504,110
1910	46,600,000

Total production of Lake Superior iron ore by ranges, from discovery to 1910 inclusive, in long tons:

Mesabi	195,703,424
Marquette	91,903,991
Menominee	71,313,115
Gogebic	60,820,503
Vermilion	29,125,385
	495,566,415

The first iron ore sold at Lower Lake Ports was in 1855 and the price was \$10.00 per ton at the Lower Lake Ports. The next year the price dropped to \$8.00 per ton, for both Bessemer and non-Bessemer.

MARQUETTE RANGE.

Year.	Bessemer.	Non-Bessemer.
1855	\$10.00	\$10.00
1856	8.00	8.00
1857	8.00	8.00
1858	6.50	6.50
1859	6.00	6.00
1860	5.25	5.50
1861	5.25	5.00
1862	5.25	5.37
1863	7.50	7.50
1864	8.50	8.50
1865	7.50	7.50
1866	9.50	14.00
1867	10.50	11.50
1868	8.25	8.25
1869	8.25	9.50
1870	8.50	9.50

1871	8.00	8.00
1872	9.00	7.50
1873	12.00	9.00
1874	9.00	7.00
1875	7.00	5.50
1876	6.75	4.50
1877	6.50	4.25
1878	5.50	4.25
1879	6.25	4.75
1880	9.25	8.00
1881	9.00	7.00
1882	9.00	6.25
1883	6.25	5.00
1884	5.76	4.50
1885	5.50	4.25
1886	5.50	4.75
1887	7.25	5.25
1888	5.50	4.75
1889	5.50	4.50
1890	6.75	5.75
1891	6.00	4.75
1892	5.50	4.85
1893	4.25	3.50
1894	2.75	2.15
1895	3.50	2.30
1896	4.00	2.85
1897	2.65	2.60
1898	3.35	2.45
1899	3.50	2.50
1900	6.48	5.00
1901	4.92	3.85
1902	5.00	4.00
1903	5.15	4.25
1904	3.85	3.35
1905	3.75	3.20
1906	4.25	3.70
1907	5.00	4.20
1908	4.50	3.70
1909	4.50	3.70
1910	5.00	4.20

In 1909 the total shipment of Lake Superior iron ores amounted to 41,700,000 long tons, of which about 7,000,000 tons were distributed in Lake Michigan, and 33,700,000 tons reached ports on Lake Erie, a small quantity passing on to Lake Ontario and beyond.

At the west end of Lake Superior water shipments amounting to 29,200,000 long tons, coming from the Mesabi and Vermilion ranges, were made from Two Harbors and Duluth, Minn., and Superior, Wis. These were increased to 33,000,000 long tons by the addition of 3,800,000 tons from the Gogebic range forwarded from Ashland, Wis., and were still further increased to 35,900,000 tons by shipments from the Marquette range, via Marquette, Mich., and by a small quantity from the Michipicoten range in Canada.

With the exception of a comparatively small tonnage required for local blast furnaces, this immense quantity passed through the Sault Ste. Marie canals and moved on to the Straits of Mackinac, where a part of the ore from the Lake Superior ports, together with some ore from the port of Escanaba (the point of shipment both for the Menominee range ores and for part of the Marquette range ores) proceeded down Lake Michigan to various ports, such as Milwaukee, Fruitport, Chicago and Gary. Some of the furnaces at these ports also obtain considerable ore from local mines in Wisconsin. The remainder of the ore from Escanaba passed eastward through the Straits of Mackinac and, with the shipments from Moose Mountain, Ontario, joined the

main column through Lake Huron, some being disposed of at Midland, Ontario, and Detroit, Mich., but the great bulk being distributed to the lower lake receiving docks at Toledo, Sandusky, Huron, Lorain, Cleveland, Fairport, Ashtabula and Conneaut, Ohio, Erie, Pa., and Buffalo and Tonawanda, N. Y.

I want to say that I attended a good roads congress not long ago in this very building, and resolutions were passed organizing a good roads committee in each state, and I would like to see a mining commission appointed in each state to report to this general Congress, and I believe that it would be a good thing for the mining business, and I further think that mining ought to be taken up by the National Government and it should give its loyal support to the mining business as well as it does to the agricultural industry. It seems they have seven millions of dollars to improve the agricultural industry and the mining industry seems to be next to agriculture, which is one of the most necessary products that the world needs and must have. I think by urging this matter to Congress that it will succeed, from what I have understood, and make mining more prosperous than it is at this time. I am making the first representation from our Michigan mining district, of which there has been little thought of up to this time, but I find it is a matter of great importance and should be well cared for by our mining people from my state of Michigan, and I assure you that in your next Congress there will be a better representation here than there is today. As a member and delegate I want to thank you for your kind attention and for the kind treatment I have received. (Applause.)

MR. S. A. TAYLOR, Pennsylvania: Mr. Chairman: There are a number of things to come before this meeting and I move at this time that we adjourn to meet at 8 o'clock this evening.

Whereupon an adjournment was taken until 8 o'clock p. m.

TUESDAY, OCTOBER 24, 1911.

Evening Session.

The evening session was devoted to the entertainment of the visiting delegates at a smoker tendered by the business men of Chicago at which refreshments were served and the responses on behalf of the several states were interspersed with some instrumental and much vocal music. Mr. Harry N. Taylor, President of the Illinois Coal Operators' Association, acted as toastmaster.

THE TOASTMASTER: Mr. Lawrence E. McGann will say a few words on behalf of the Hon. Carter H. Harrison, Mayor of Chicago.

MR. MCGANN: Mr. Toastmaster and Gentlemen of the Congress: When the Mayor of our city asked me to attend this meeting this evening in his behalf he told me to tell you that he exceedingly regretted his inability to attend this meeting so that he might personally extend to you most hearty welcome. I have been reminded that I was not expected to make a speech, which is wholly pleasing to me, but I would like to take this opportunity to say that in no city in the Union will be more appreciated many of the subjects that you have under consideration, the general conservation of great natural values, and added to them the greater subject and also one of the great economies, the conservation of life and limb as well as the preservation of property. The conservation of individual interests that will protect American education and intelligence has passed the day, where the man who ignores it can succeed. The individual interests of the different classes of trade and combinations that go to make up the great American nation, will be contended for with an intelligence such as has not been known in any other part of the world. The intelligence that is taught in our public and our private schools, and that is inborn in every American citizen breathing in the free air of America; the consciousness of a proper interest in his own individual self and in the nation, and the cour-

age to preserve the values in his individual self and in those associated with him; that is the conservation of today; that is the conservation that the engineers of every character, that the financiers of every character, that the captains of industry must recognize as the dominating question of America and of the world, and I congratulate you, gentlemen, on the gathering here and the calling into being of a Congress of gentlemen so intelligent, so capable, so addicted to the habit of computing values and of determining chances, and of recognizing facts when you meet them and of formulating plans for success.

You will pardon me for taking advantage of this opportunity to express these views, but they were impressed upon me as I entered this hall this evening by a gentleman whom I have met frequently and who is active in this association. An expression of his inspired me, or suggested to me that these thoughts, or an expression of them, would not come amiss at this time. I thank you, Mr. Toastmaster and gentlemen. (Applause.)

THE TOASTMASTER: We will now hear from a gentleman whose almost untiring efforts during the past two or three months has made this meeting of the American Mining Congress such a success as it is, Mr. C. M. Moderwell, Chairman of the Executive Committee.

MR. MODERWELL: Mr. Chairman: I announced at the meeting this afternoon that I had made my last appearance, and I didn't know anything further would be required of me tonight except to take my share of the provender. Speaking for myself, and for the gentlemen who have already expressed themselves in the same way, we are very anxious to get to the actual business of the evening, and I am not going to disappoint them by making a speech at this time. I have better taste. (Applause.)

The Toastmaster then called on Mr. T. H. O'Brien, New Mexico.

MR. O'BRIEN: Mr. O'Brien will also show his good taste by not saying anything this evening. Thank you. (Applause.)

The Toastmaster then called on Mr. Horace L. Chapman, of Ohio.

MR. CHAPMAN: Mr. Toastmaster and gentlemen of the American Mining Congress: I did not come here for the purpose of making a speech, but I came here to be a listener and to learn something from gentlemen here more familiar and better qualified to talk upon the subjects for which this Congress was organized.

I desire on the part of Ohio to tender to this Congress and to the city of Chicago and my friend, Harry Taylor, whom I have known for many years, the thanks of our people for your hospitality upon this occasion, and I hope that the results of this Mining Congress as organized, in the future will bring great improvement to all the industries which it represents, and especially to the coal industry of the central competitive field.

I came here many years ago when a boy, you might say, more than half a century ago, to this city of Chicago when Cincinnati in population rivaled it. Now, where are you? Two and three-quarters millions people, the second largest city upon this continent, and in my judgment in another half century, if no misfortune befalls, Illinois will boast of having the city of the largest population in this country if not rivaling England's capital—London. (Applause.) I came here many years ago to a convention of operators, miners of coal, when an arrangement was made by which we entered into contracts covering that industry, and I shall never forget the scourging that the Chicago newspapers gave me for more than two weeks every day from one to two columns in each of them, because they claimed that I was holding up the convention on the part of Ohio for some interests that were there, that we should not be unjustly dealt with, but when the outcome came those same gentlemen had to take back every word that they had said concerning me as an individual. I thank you, gentlemen, for the honor that you have conferred in calling upon me to make a short address. (Applause.)

THE TOASTMASTER: There is a gentleman here who by splendid efforts in the past was one of the main factors in getting certain legislation passed which has had great bearing upon the mining industry of this country, Honorable John C. Chaney, of Indiana, former member of Congress.

MR. CHANEY: Mr. Toastmaster and Gentlemen of the American Mining Congress: Indiana never fails to make a speech when it has permission. I come from the region in Indiana of the very best quality of bituminous coal (laughter). We have millions invested in those enterprises, and we have until the Mining Congress began to pay attention to us, never conserved our resources for they were practically exhaustless, and we haven't begun to appreciate that the end is anywhere in sight this side of the millennium.

I am very pleased to have a part, a small part, in disposing of the provender of this occasion and to touch elbows with the men who represent the great mining industries of the United States and of Canada and possibly elsewhere. I am glad to be introduced as having had something to do with legislation which furthers the interests of the various sorts of mines throughout the country. I am glad to have been able to be a part in the establishment of the Bureau of Mines in the United States, but I am particularly pleased with having had the opportunity to propose and see passed the appropriation which enabled the rescue stations of the country to be established for the conservation of human life. We have been interested in excellence and we have achieved excellence in nearly all the branches of human effort, and it is this fact which has made the United States of America rank foremost in the civilization of the earth. I am pleased to know that we reach out after excellence in every department of life. Mr. John Dern succeeded in achieving excellence in the gold mining department of human effort through cyanide. Now, I do not know whether it is safe for everybody to indulge in cyanide as a means of achieving excellence or not. Over at Boston the other day there was a man who indulged in cyanide as the means of disposing of one of his sweethearts so that he might enjoy the other, and over there the newspapers say that is the durnest way in the world of disposing of your sweetheart (laughter). I believe, however, in excellence and all things that go to achieve excellence. I understand that the Mining Congress seeks to lift up to the highest possible level all of these various energies of human life, and therefore I am somewhat disposed to find fault with what is teeming throughout the country in the way of an endeavor to eliminate competition which has always heretofore been the spice of life, for it seems to me that when we eliminate competition we to a certain extent eliminate emulation and therefore interfere with excellence. So far as possible I would hold fast to competition that we may go on to higher and better results and achieve excellence in all departments of life.

I congratulate this Congress in its great assembly of people so intently interested in the highest usefulness of the mining industry for through the minerals which have been brought out of the earth and are to be brought out of the earth are contributed the fundamental principles of progress. We may talk of invention but only as applied to these things which are dug out of the earth will invention bring us on to greater victories and more wonderful achievement.

I am proud, too, that we are able to meet in this great city of Chicago which has within it all of the elements which embellish and encourage higher civilization. Truly here everybody is welcome that you may distribute your gold to these people, welcome that you may disburse here your money among this people, and also help them to estimate their value not only in dollars and cents but in the height and depth and breadth of their buildings. Let us, therefore, not only appreciate where we are but realize the fact that we are here to learn of these men who have made life a specialty, who have studied each of these departments with care and with resolution and let us with that aggressive spirit drink in from these men whose lives are pitched in

these fields of splendid effort and go home to our various places and apply those principles to the best interests of the communities whence we come. To the coal miners of the country we especially send greeting and when you want to make an investment that is worth something, when you want to estimate values that amount to something, come down to Sullivan County, Indiana, and invest in coal land. (Applause.)

THE TOASTMASTER: It is now my pleasure to introduce a representative of the South, Prof. E. L. Martin, of Atlanta, Georgia.

PROF. MARTIN: Mr. Toastmaster: Reference to the printed program will show that Mr. T. R. Lombard was scheduled to respond on behalf of Georgia to the very gracious and eloquent welcome extended to the Mining Congress this afternoon. As it so happens that only myself is present, from that state, I have been informed by our Secretary that the program committee has unanimously and enthusiastically done me the high honor of selecting me to appear this evening as Mr. Lombard's substitute.

Now, Mr. Chairman, that fact was only communicated to me a few moments ago, and in such service as I have seen in the matter of making occasional public addresses, it has always been with me a mooted question, whether it was the more painful to be loaded with a speech and not have an opportunity to go off, or not to be loaded, be compelled to go off. In view of the embarrassment under which I labor at this moment, I am inclined to resolve the doubt in favor of the latter predicament, and before I conclude, I fear that my auditors may unite in making this view of it unanimous.

Hailing as I do from Atlanta—the livest municipal wire in all Dixieland—I have been much gratified to observe the pride which Chicagoans very naturally and deservedly feel in having their city referred to as “The Atlanta of the Northwest.”

As school children, we learned from the Roman general and historian, Julius Caesar, that *Omnia Gallia Divisa Est In Partes Tres*. Should the average Atlantian be called upon to give the history of his city, he would undoubtedly begin by declaring that “All Atlanta is divided into three parts—one of which is the Southern states, and the other two Atlanta.” From what I have heard and also observed of the Chicago spirit I doubt not that the loyal Chicagoan would declare that “All Chicago is divided into three parts, one of which is the United States and the other two Chicago.” And I am inclined to think that the members of this Congress present from all parts of the country who are partaking of your royal hospitality would applaud the sentiment.

Mr. Chairman, I observe that a very large majority of the membership of this Congress is composed of gentlemen who come from the states of the West, conspicuous for their mineral wealth, while I hail from a state whose citizens are interested in the mining industry, chiefly as investors, but their interest is none the less keen and vital because of this difference.

I believe it is well authenticated that about the earliest successful gold mining done in the United States was in Georgia, and that prominent among the forty-niners who opened up the gold fields of California, were the hardy miners from the “Empire State of the South.” It is now patent however to our people that Georgia gives promise of only scant reward to those who seek the precious metals within her confines. But conscious as they are of the fact that the Generous Giver of All Good has filled to overflowing with golden treasure the great rock-ribbed vaults which He fashioned and placed among the mountain fastnesses of the West, and that He intended that all His children who might possess the courage to seek this rich and goodly heritage should become sharers therein, our people have resolved to co-operate with their brethren of the West, by furnishing much of the capital necessary to unlock and develop it.

I am gratified to say to you, sir, and to all others present, that in many instances they are beginning to reap the fruits of their faith

and courage. They have only asked and shall only continue to ask that they be given the truth regarding the propositions in which they are requested to invest, and that they be dealt with fairly and honestly. On their behalf I wish to say that they look to this organization to insist that laws be enacted in each of the mining states (as has already been done in quite a number) which will give to them and their investment, protection from the fakir and the bunco steerer. With this done eastern and southern capital will flow westward with ever-increasing tide to develop the latent mineral wealth which there abounds.

In conclusion, Mr. Chairman, permit me again to thank you and the citizens of Chicago, for your royal hospitality, and to say I believe that here, in pre-eminent degree, is found that virile, vigorous spirit, which typifies American life and progress, making of the United States the undisputed queen among the sisterhood of nations, and of Chicago the brightest gem in the coronet of cities which bedecks her brow.

THE TOASTMASTER: We will now hear from a distinguished engineer, Mr. Philip N. Moore, of Missouri.

MR. MOORE: I have been informed that it has been the immemorial custom of this assemblage to call for a response on behalf of the state of Missouri from your distinguished member and my distinguished friend, Dr. Buckley, but Dr. Buckley is no longer eligible for some reason, perhaps the terror of these responses or the fear that the habit of much speaking might grow chronic with him, anyhow he has left our state. Possessing a pull of favoritism unexampled he calls on the speaker, unused to such things, to represent the grand old State of which he is a most unworthy member. It is one of the advantages of years, it has plenty of disadvantages, but one can recall in his own observations the various fluctuations of the industries in his state. In the days of long ago your speaker, a youngster on the geological survey, hoping to attain immortal fame at \$75.00 a month, used to hear one of the great orators of Missouri who regularly was called upon as the reserve whenever the appropriation for the geological survey was in danger. The colonel had one speech, it always came, he begged the members of the legislature to realize the enormous mineral resources of the state which were now deeply buried in the bowels of the earth calling for danger and grime and heavy expense for their realization but that they stood forth proudly on the crests of the mountains where sun-kissed they first greeted the coming of the dawn. Gentlemen, the iron ores of Missouri, which in those days first greeted the coming of the dawn, long since have gone underground and from the old state comes in its place not the iron but the lead and zinc which make her memorable, and the coal which in time will make her rank with the old state of Indiana.

If you will pardon me for but a moment, gentlemen, I have heard this evening the word conservation. We conjure with that word, we use it loosely and inaccurately, but I want, as this is the only chance I shall have at this meeting to be heard, I want to call your attention to one danger in the line of conservation, to one leak, to one untouched feature which in our growing regulations by labor and by capital seems to be gradually dropped out of sight. I refer to the conservation of industrial liberty (applause). It has been my fortune not long since to discuss with some distinguished members of our profession the conditions in mining in one of the great nations on the other side where the rule is that everything is forbidden which is not permitted; with us it has been our proud boast that everything is permitted which is not forbidden. In the growing regulation from above and from below it seems to me, and gentlemen, it behooves us all to remember that our gains, as we have made them, have been made by industrial and individual liberty (applause).

The Toastmaster then introduced Mr. John Gillie, of Montana.

MR. GILLIE: I feel like telling Mr. Taylor the same thing he told me a few minutes ago. However, I am very glad to have a chance to say something and of having the opportunity to be here. This is a

very representative meeting of the mining industry, and coming from Butte I might give you a whole lot of statistics on copper, but I think as we are met here this evening matters of that kind would not be very interesting to you. So I shall merely thank you for the compliment.

THE TOASTMASTER: I take pleasure in calling upon Mr. C. N. Gould, to respond on behalf of the state of Oklahoma.

MR. GOULD: No equal area that the sun shines upon has, during recorded history, made such rapid, material development as has Oklahoma during the past ten years. Her history reads like a romance. Even those of us who have had a part in this development can scarcely realize the wonderful advancement that has taken place.

Where twenty years ago were bare plains are now flourishing cities; where, ten years ago, were wooden shacks, now stand twelve story sky-scrapers; where ox teams and cow ponies crossed the plains are now long lines of steam railroad and trolley cars.

Oklahoma has grown, not by accident, but because of the fact that she is endowed with unparalleled natural resources. With soil and climate unsurpassed, no state in the Union has such varied agricultural resources. In the increase in the mileage of railroads, the increase in bank deposits, and increase in population in the two chief cities during the past ten years, she leads the world.

But it is in the matter of minerals that you, as delegates to the American Mining Congress, are interested. And in minerals Oklahoma is richly endowed. No State has either a greater variety or a greater amount.

Material prosperity is based on power, and power is dependent on fuel. The state that possesses large amounts of fuel has a great advantage over a state without fuel. Oklahoma has 80,000,000,000 tons of coal locked up in her hills; she produced last year 54,000,000 barrels of petroleum, and has a daily production of 2,000,000,000 cubic feet of gas. She has asphalt enough to pave all the streets of all the cities of the United States for a thousand years; her lead and zinc mines are as prolific as those of Missouri; she has 125,000,000,000 tons of gypsum—enough to make 10,000 tons of plaster daily for 43,000 years; she has salt water enough to make 500 cars of salt a day; she has a ledge of glass sand fifty feet thick and one hundred miles long; manganese and hematite iron ore of high grade; mountains of granite and marble; sandstone and limestone, with Portland cement rock, clays and shales in inexhaustible quantities.

All the minerals, that go toward the development of a prosperous state are found in great abundance in Oklahoma, including the structural materials, the metals and the fuel for their manufacture.

At the present time not one-half of one per cent of the mineral wealth of the state has been developed. We in Oklahoma are sending out of the state for practically everything we use in the way of manufactured articles. Our salt, our lime, our granite, our building stone, our brick, our tile, our Portland cement, our asphalt, and even much of our coal, are produced in other states.

What Oklahoma needs more than anything else at the present time is more money to develop its mineral resources. With vast undeveloped resources in our midst, a region containing a large and rapidly increasing population, the utilization of her minerals is but a question of time. No better investment can be made than in mines, plants and factories under conditions such as now obtain in Oklahoma.

The Toastmaster then introduced Mr. Eli T. Connor, of Philadelphia.

MR. CONNOR: Mr. Chairman, Gentlemen of the Mining Congress: The excellent addresses to which I have listened today, and this evening, leave very little for the delegate from Philadelphia to say. We have heard from most of the great mining states of the Union; from the representative of our neighbors on the North, Canada; and from the delegate of our great and good friend, the Republic of France, that which is instructive, pleasing and entertaining.

The wonderful advances that have been made in the art of mining, in our great western states, in the past few years, are of great interest to all mining men, but particularly to miners from the old Keystone State. As this is the first meeting of the Mining Congress that it has been my good fortune to attend, I cannot help but express some surprise that the state which is foremost in quantity and value of products of the mine, is not more largely represented at this gathering. It is hardly necessary for me to mention here, in the presence of these eminent mining men from all over the country, and who have so eloquently portrayed the progress of each of their several states, the fact that many of the progressive miners of the country took their first lessons in underground development in Pennsylvania. The representative of his Majesty's government has quite properly designated Great Britain as the "Great Mother" of the mining industry. I had thought of applying this term to the Keystone State, but as it has already been pre-empted, I will claim for Pennsylvania that it is the "Daddy" of the American mining man. Wherever I go, in coal mines of the country, as far west as the Pacific coast, and in the provinces of Canada, I meet men whose early training was acquired in the mines of some part of the state of Pennsylvania, and I believe that while the contribution of my state to the economic development of the country, of its products of the mine, is of paramount importance, as compared with all other states of the Union, the well-trained, energetic, and resourceful men who have there been developed, and who have scattered to all points of the compass, in pursuit of the great mining industry, constitutes a still more important force for the uplifting of mankind.

I have before mentioned the comparatively small representation of my state, at the present Congress, but I wish to again refer to it and to express the hope that the next annual meeting of the Congress may be in my home city of Philadelphia, which as is probably well known, is the cradle of the coal mining business, the oldest known coal corporation in Pennsylvania, the Lehigh Coal Mining Co., having been organized in Philadelphia, in 1792, this being the origin of the Lehigh Coal & Navigation Co., which is still one of the most prominent anthracite coal mining companies in Pennsylvania.

My thought is that if the Congress will select Philadelphia as its next place of gathering, much greater interest can be aroused in the objects aimed at by the Congress, not only among coal mining men of the East, but among engineers, owners and investors, in all kinds of mining ventures, throughout the country.

I have been authorized by the mayor of the city of Philadelphia, to officially invite the Congress to our city, next year, and trust that the directors of the Congress will take favorable action upon this invitation.

The Toastmaster then introduced Dr. J. E. Talmage, of Utah.

DR. TALMAGE: I am honored in the request to make a brief response in behalf of the delegation here present representing the State of Utah, to the address of welcome to which we have listened this afternoon. In thus responding I am not unmindful of the fact that Utah is one of the guests of the great state of Illinois and her distinguished daughter. It would be more in accord with the proprieties, perhaps, for the guest to say but little of herself, yet I am specifically invited to say a word with respect to Utah as a mining state.

I can say with assurance that Utah stands high among the mining states—high in the literal sense, for even our valleys are a mile or more above sea level, and our mountains, in which lie mineral treasures beyond measure or count, tower to nearly three times that altitude. Even the base of the mighty Wasatch barrier is far above the tops of the Alleghenys. Out in our land aviators rise from the ground at an altitude which, in places removed from the mountains, ordinarily marks the culmination of their ascent.

But in another sense, the sense of importance and greatness, Utah ranks high among her sister states engaged in the mining industry.

Year by year she presents a continually increasing output of gold, silver, copper, and lead, while her immense reserves of iron and zinc remain practically untouched. Our mineral bi-products represent immense values: It was said today by the distinguished representative from the British Dominion on the north that Canada had enough arsenic to poison all the people of the United States. Of Utah it may be said that she has enough to poison the world. She has been allowing a million dollars worth a year to escape from her smelters, until the law, like a watchful guardian compelled her to curb her extravagant waste. As for sulphur, Utah could set up a rival institution to that of Satan himself and keep the sulphurous fumes going for ages. Utah has salt enough to keep the world from spoiling as long as mankind shall need to be salted. She has gypsum enough to plaster all Paris and the world beside. Her hydro-carbons are so plentiful that only the best and rarest are mined and marketed. Among the producers of the rarer metals she is rapidly attaining a place of enviable importance. She is exploiting deposits of minerals containing uranium and vanadium and the yet rarer radium in unique combination.

And among the other bi-products of the mining industry Utah maintains a steady yield of litigation cases in number and richness to keep the lawyers working double shift. Her mills and smelters are among the largest in the world. We read in ancient writ that by faith, mountains may be moved, and we read further that faith without works is dead. The vitalized faith manifested in works by the Utah copper producers is literally removing an entire mountain, slice by slice, in the Bingham district.

Utah is vitally interested in the work of the American Mining Congress and has manifested her interest in that organization from the first. She pledges her co-operation and aid in any action this Congress may take looking to the betterment of conditions attending mines, mining, and miners.

The Toastmaster then introduced Mr. E. L. DeLestry, of Minnesota.

MR. DE LESTRY: Mr. Chairman and Gentlemen: On behalf of the state of Minnesota we desire to express our great appreciation for your hearty welcome to your wonderful city. Coming to Chicago is like coming to an old home, at least to me, for many pleasant associations still linger in my memory from the earlier years of my life, spent in this city. If the North Star State has not heretofore taken an active part in the work of the Mining Congress it is not on account of its lack of mineral wealth. Our state now contributes annually twenty-eight million tons of iron ore to the markets of the world. Its production in magnificent building stones of great value can hardly be estimated. With the splendid granites of St. Cloud, which appear in many of our public buildings, the dolomites of Winona, the beautiful standstones of the Kettle river, and the famous lime stones abounding in every direction we still have vast areas of undeveloped iron lands open to the energetic miner. We estimate that the supply of marketable iron ores of Minnesota will yield for a century to come.

Aside from our local resources many thousands of dollars of Minnesota capital have gone into the developing of mines of the far west and still continue to assist in the further development of the country's greatest industry, which we here represent. Only the near-sighted parsimony of our legislature has so far kept the state from having a well established department of mines but the time is surely coming when such a department will be established in our state. Governor Eberhardt recommended it in his last message to the legislature and the matter will be kept fully alive in the future.

I am firmly of the opinion that once our citizens, who are in any manner interested in mining realize the great work this Congress is doing, they will not hesitate to become actively associated with us and I believe we can greet the next annual convention at least with a Twin City section fully organized. The public must be educated to all great

movements but I wish to say in closing my remarks that the newspapers of the state are treating us with utmost liberality in promulgating the news as it pertains to our efforts.

Again we thank you for your greetings and we already feel sure that our stay in your city will be both pleasant and profitable.

Whereupon an adjournment was taken until 10 o'clock a. m., October 25.

WEDNESDAY, OCTOBER 25, 1911.

Morning Session.

The meeting was called to order by Dr. E. R. Buckley, at 10 o'clock a. m.

THE CHAIRMAN: It has been the custom, ladies and gentlemen, yearly, for the president to present to the members of the American Mining Congress an annual address. This address follows various lines of instruction, and is a review of the work of the American Mining Congress. I think that perhaps there is no man associated with the American Mining Congress who knows better or more fully the work of this organization than our present president. (Applause.) Our president has been untiring in his efforts to build up and to make this organization successful in every way. He is a man who is in touch not only with the practical mining industry and successful miners and operators, but he is also a man well versed in the technology of mining. I think we have been extremely fortunate during the last year in having Mr. John Dern, of Salt Lake City, as the president of this American Mining Congress; not only because of the personality of Mr. Dern, president, but because he comes from a city in the west which stands pre-eminently first in this great industry. I think that the members of the American Mining Congress owe to Mr. Dern and his people much more than a vote of thanks for the interest that they have shown in this organization and the help which they have given it in the years past, and so I take great pleasure this morning, ladies and gentlemen, in presenting to you our president, Mr. John Dern, of Salt Lake City.

Mr. Dern's address will be found at page 121 of this report.

THE CHAIRMAN: Mr. President, I am sure I express the sentiment of this meeting when I say that we have been most highly entertained by your instructive and interesting address. (Applause.)

The next number on the program for this morning is the report of the committee on workmen's compensation, by Mr. John H. Jones, its chairman.

SECRETARY CALLBREATH: The report of this committee is printed in the issue of "Fuel," which has been distributed, and the reading of that report will be dispensed with, with your permission.

The report of the committee on workmen's compensation will be found at page 113 of this report.

THE CHAIRMAN: This report is to be discussed by Mr. C. O. Bartlett, Cleveland, Ohio; Mr. James W. Wardrop, Pittsburgh, Pa., and Mr. John Mayer, Kansas City, Mo.

MR. HARRY S. JOSEPH, UTAH: I would like to ask whether this discussion will be limited to this morning's session.

THE CHAIRMAN: That will depend upon the number of people who desire to discuss this report. If we have sufficient time this morning we will close the discussion this morning. If the Congress desires to have the discussion continued to some future time it is in their hands to postpone that discussion.

MR. JOSEPH: The reason I bring this up, Mr. Chairman, is that all of us have not had the opportunity to see this report that has been so ably prepared, and in this morning's issue of the papers there is a dispatch from Washington to the effect that the committee having in charge a measure which will probably include the sum and substance of this proposed workmen's compensation measure, is working upon a

measure to be presented to Congress, and they invite suggestions, and I believe before limiting the discussion to this morning's session that we ought to carry it through the entire session, so that we may all have a chance to study, not only that measure, but also to study the law as presented by this committee of the Congress.

THE CHAIRMAN: A motion will be in order at any time during the sessions of this congress, to take up this discussion at a further meeting. We will now hear from Mr. C. O. Bartlett, of Cleveland, Ohio.

MR. BARTLETT: Mr. Chairman and Ladies and Gentlemen of the American Mining Congress: To begin with, I wish to say a word or two about the paper which has just been read by our worthy president. I assure you that it makes me feel good to hear such a paper. It was my fortune to meet with this convention some years ago, at Deadwood, S. D. It was also my fortune to say at that convention that it was necessary to include the coal industry in the work of the American Mining Congress. At that session I think we only had two representatives of the coal men there. I said at that time that other things must be considered if we would make a success of this Congress. I remember in particular of some one speaking of producing \$7,000,000 worth of gold in the great homestead mines in Lead, S. D., and it occurred to me then that they were producing more than that value in granite down in the little state of Vermont; and in our state of Ohio we produced last year \$21,000,000 worth of clay products, and when the president speaks of these products it makes me feel good. It is what we ought to do. It has been a long, hard fight to put this American Mining Congress on its present footing, and we are much indebted to such men as Dr. Buckley and Dr. Holmes and Mr. Callbreath and Mr. Richards, for the work they have done. To illustrate, at that time hardly a single paper was supporting this institution. I think the Mining World was about the only one represented at that Congress. Now we are supported by every mining paper in the United States. The future is great for us.

Mr. Bartlett's paper will be found at page 191 of this report.

THE CHAIRMAN: This address will be followed by one on the same subject by Mr. James W. Wardrop, of Pittsburgh, Pa.

MR. WARDROP: Mr. President and Ladies and Gentlemen: I might preface my remarks by saying that I expect to present the argument of Mr. John H. Jones, the chairman of the committee that produced this compensation law, now before you, or to give you from the chairman of that committee the views of the committee and the basis upon which it worked to present what you have now in print, and which you expect to discuss.

Mr. Wardrop then read Mr. Jones' paper, which will be found at page 180 of this report.

The Chairman announced that a brief discussion by Mr. John Mayer would be given the first thing in the afternoon, and after some announcements by the Secretary an adjournment was taken until 2 o'clock p. m.

WEDNESDAY, OCTOBER 25, 1911.

Afternoon Session.

The meeting was called to order by the President.

The Secretary read resolutions Nos. 1, 2, 3, 4, 5 and 6a as follows:

Resolution No. 1, Introduced by Harry S. Joseph, Utah.

Whereas, There exists in the Rocky Mountain states many mining properties containing developed low grade ore deposits and vast dumps containing metal bearing ores not susceptible by present known methods of treatment whereby the precious metals can be economically and profitably extracted; and

Whereas, It should be incumbent upon the general government to lend all possible aid to the end that conservation in its true mean-

ing and sense, viz.: the prevention of waste of natural resources may be practically carried out; and

Whereas, the extraction of metals from apparent worthless ores fulfills the above doctrine in part; and

Whereas, It is now a settled fact that Salt Lake City, Utah, is the center of the mining activities of the West,—

Resolved, That it be the sense of The American Mining Congress in convention assembled, that the President and Congress of the United States be and are hereby memorialized to enact such legislation as shall establish under the auspices, direction and authority of the United States Bureau of Mines at Salt Lake City, a metallurgical, experimental or ore testing station for the purpose of devising methods to extract the metallic values from such low-grade ore and furnish the mining world with the results of such experimentation, and appropriate \$250,000 for such purpose;

Resolved further, That the officers of the American Mining Congress draft a suitable bill embodying the above; that copies of same, together with this resolution, be forwarded to the President of the United States, and to every senator and representative, and that all honorable and energetic means be used to the end that such a bill may become a law.

Resolution No. 2, Introduced by the Kanawha Coal Operators' Association.

Whereas, The President of this United States, in his address before the conservation congress at St. Paul, Minn., and on other occasions, so earnestly and properly insisted upon speakers and others confining their remarks to concrete suggestions or plans by which more might be accomplished than had been done to conserve our resources; and,

Whereas, The conservation of bituminous coal is one of great importance to this nation; and

Whereas, Unlike other manufactured products the condition under which the necessity is marketed prevents the producer from deriving a sufficient profit to enable him to conserve the coal in the ground and the installation of the most modern appliances by which a far greater tonnage than is now produced could be mined from each acre of coal area instead of leaving a large portion of it in the ground in such shape that it can never be gotten out; and,

Whereas, Notwithstanding the many statements sent broadcast from time to time that the producers of bituminous coal are charging an exorbitant price for it, said statements being made by men of prominence and well informed on most subjects show that they undertake to discuss a most important subject which they do not understand, and a subject concerning which they could easily obtain accurate, reliable and exhaustive statistics by calling on the heads of the mining bureaus of our various coal producing states, which statistics would correctly show that the coal from most of our states having the greatest deposits of the highest grade bituminous coal, and from which the greatest tonnage is now being produced, is sold by the producer at a price that nets him an average annual profit of less than ten cents a ton, and in many cases and for long periods of time at a price below actual cost of production, notwithstanding the fact that the production of coal is one of the most hazardous and dangerous enterprises in which funds can be invested or labor be employed; and,

Whereas, The larger as well as the smaller producer of bituminous coal has for years been forced to market his product at an actual loss or a profit which is insignificant when compared with the nature of the investment and the hazard surrounding it; and,

Whereas, This deplorable condition of the coal trade is largely the result of the producers of coal being unwilling to do what might

be technically construed as a violation of the Sherman anti-trust law; be it, therefore,

Resolved, That it is the sense of this association that the Sherman anti-trust law should be construed as to admit of such understandings and co-operation between the producers of bituminous coal as would admit of the marketing of that product at a reasonable profit to the producer to the end that he may receive a fair return on his investment, and at the same time conserve the coal supply in the ground; and be it further

Resolved, That a copy of this resolution and its preamble be forwarded to the American Mining Congress, which convenes at Chicago, Ill., October 24, 1911, and that Congress be requested to pass it, and request each of its members to forward a copy to his representative in the Congress of the United States.

Resolution No. 3, Introduced by the Valdez Section of the American Mining Congress.

Resolved, That the American Mining Congress supports the unanimous voice of Alaska in opposing the leasing of Alaska coal lands. Government operation would be preferable because it would give the government absolute control. Leases could be made only to great corporations under terms that would give them monopolistic advantages. Otherwise they would not accept a lease.

Resolved, That the unanimous demand of Alaskans for the abolition of forest reserves in the territory ought to be granted. These segregations are a useless expense to the government, an annoyance and handicap to residents who are trying to develop the resources of the territory, and have never saved a dollar's worth of timber or water from monopoly or waste because the annual production of both in the forest reserves many times exceeds the consumption.

Resolution No. 4, Introduced by James Fletcher, Illinois.

Whereas, The present scale of wages expires on the first day of April, 1912, and a new scale must be adopted by the miners and operators; and,

Whereas, Experience has shown us that it is sometimes very difficult for the operators and miners to agree on a scale; therefore be it

Resolved, That this Congress recommend that in case of a disagreement between the operators and miners on a just and equitable scale, the matter shall be settled by a Board of Arbitration consisting of three members of each state, one to be appointed by the miners' organization and one by the operators and a third to be agreed upon by these two; provided the two members thus appointed cannot agree on the third member, said member shall be appointed by the President of the United States.

Resolution No. 5, Introduced by B. W. Goodsell, Illinois.

Resolved, That the American Mining Congress is in hearty sympathy and accord with the efforts being made by the sixty millions of people tributary to the great valley of the Mississippi River through the "Lakes to the Gulf Deep Waterway Association" to demand from the United States Government through its Congress to lend every possible aid towards securing a fourteen-foot channel between the Great Lakes and the Gulf of Mexico through the Illinois and Mississippi rivers, and thus save to our people not only a sufficient amount in transportation charges every three years to cover the entire expense, but also to regulate freight rates to the Atlantic seaboard which are now seven times greater than through this natural outlet from the Great Lakes to New Orleans when accomplished. All mining interests between the state of Ohio on the east and California on the west will be equally benefited with our great agricul-

tural interests by this connecting link between the great west and the Panama Canal, and eastern markets along the Atlantic coast.

Resolution No. 6, Introduced by Z. Taylor Vinson, West Virginia.

Resolved, That the committee on resolutions be and it is hereby requested to report the advisability of requesting Congress to enact such legislation as will provide a suitable method of providing for an equitable workmen's compensation for injuries received, and a modification of the Sherman anti-trust act so as to permit reasonable trade agreements between those engaged in the mining industry.

Resolution No. 6a, Introduced by E. T. Bent, Illinois.

Resolved, That the American Mining Congress hereby declares in favor of the enactment of workmen's compensation laws in the several states; that such laws should become the sole remedy for those coming under its provisions; that they should either be compulsory upon both the employer and the workman, or else optional with both; that if optional, the workman must elect within 30 days after securing employment and before he is injured or the compensation act applies; that there should be a permanent state board to administer the act; that the advisability of inserting the state insurance and state industry features be left open for local determination; that if said features are not inserted mutual insurance by industries be permitted by the act under proper regulations; and that the pension payments instead of lump sums payments be required, with "adequate means for commuting to a lump sum on a proper showing either for the purchase of an annuity or for payment to the said state board for the purpose of creating an annuity fund.

THE PRESIDENT: We will proceed with the regular program, and first we will have a few remarks by Mr. John Mayer, Kansas City, Mo., on workmen's compensation.

MR. MAYER: Workman's compensation is comparatively a new thought out in the Southwest, yet we have had to meet it in one of our states, Kansas, and will probably have to meet it in the other three states covered by our association.

The reasons advanced for this kind of legislation are many and the principal ones you are familiar with. Summed up it is the idea of making the industry pay for everything that goes to make it a going concern. The purchase of machinery and the repairs thereto, the loss in total if destroyed by fire or other accidents, are now made a fixed charge and the claim is advanced that so also should there be made such a charge for the loss of life or the crippling of employes, as they are necessary to keep your institution a going concern. Society should bear the burden by making the results of accidents an overhead or fixed charge against the industry whether accidents occur to machinery or men, and we have a more advanced idea that if this could be equitably done that the present policy of leaving employes that have been totally or partially disabled or their dependents in case of death, a charge upon the public, will in a measure be done away with; they will be able to care for themselves and thereby lessen the load of public charities which is growing.

The thought is beautiful, but we must remember that human nature is pretty generally alike the world over, and when we make legislation, the selfishness and interest of all should be carefully considered. Compensation for accidents is likely to become a reward for carelessness. An industry may become an industrial pension bureau, and for these and other reasons it is well to consider a few of the important points that should be considered in such legislation.

We believe that such a law should be optional. We believe that where the employer comes under the compensation law of a state that the liability laws, if any there be, in that state should be modified so that the employer could have at least the common law defense against the

employe that refuses to come under the compensation law. The employe should not have two methods of procedure against the employer. The employers' liability should be the compensation provided in the law and should not be any more, under any circumstances.

We hold that the fund created to care for these accidents should be contributed to by both employer and employe in a proportion to be found just and equitable, and this for the reason that the fund then will be more honestly guarded. When both parties to the fund are paying for its maintenance they will jointly see that it is not plundered.

There may be reasons for different measures of compensation in the different states owing to different wages paid or different physical conditions, but we should try and have any measure recommended by this Congress as general as it is possible to make it. As to the rules for obtaining the measure of compensation, the creation of the fund from which to pay the compensation and the rules regulating the handling and safeguarding the interests of both parties, and so far as the coal mining industry is concerned the state system of inspection, if a common fund is created, they should be so thorough and impartial that the careful employer would not be called upon to help pay for the carelessness of some other employer. This brings us to the idea that we have and that is that each employer should pay for his own accidents. This may be argued against by some on the ground that the employe's may not be able to collect what is due them from some employers and thereby lose, but on the other hand these are the class of employers that will make the burden of keeping up a common fund so great on the other employers that it may be necessary for them to refuse to come under the compensation act and then liability laws will surely follow.

The measure of compensation should be adequate, but at the beginning should be the minimum, as each succeeding legislature will see that it is raised if at all possible.

Above all, this class of legislation should be as nearly uniform as it is possible to make it in all the states, to obviate a certain class of business in one state working under a much different law, and thereby a different fixed charge for the production of its commodities, to come in competition with a similar industry in an adjoining state.

THE PRESIDENT: An opportunity will now be given to any one to discuss this question.

MR. Z. TAYLOR VINSON, West Virginia: Mr. President and Gentlemen of the Congress: I think there are three or four tremendous problems that have been presented by the previous speakers for your consideration at this meeting. One of these problems is the matter of a proper workingmen's compensation law. Another matter which has been particularly pointed out is how best to secure Congressional action that will modify or amend the Sherman anti-trust law so as to relieve us from the cruelty of its operation. The operation of the anti-trust law and its effect upon the coal industry and the best methods of changing or modifying that law is as important for us to consider here and now as the workingmen's compensation act.

My excuse for saying anything at this time is due to the fact that I have been requested to prepare a bill for the consideration of Congress at its next December session, having for its purpose the creation of a National Mining Commission, vested with power and authority to (1) prescribe rules and regulations for mining coal that will be real conservation of that great natural resource; (2) to prescribe rules and regulations to prevent mine accidents and protect the health of miners; (3) to administer the provisions of a workingmen's compensation law provided for in the bill; (4) and to pass upon and approve or condemn trade agreements between coal producers, wherein such agreements would lessen or limit to some extent the acute competition that now prevails between them.

After consulting with those whom I knew could give me valuable suggestions in getting the best opinions and judgment of men having long experience in the coal mining industry, I am constrained to believe

that the creation of a National Mining Commission to regulate the coal mining industry along the lines of the Interstate Commerce Commission, and one that will have universal and complete jurisdiction over the mining business throughout the United States will solve, in the main, all these problems.

At a former meeting of this Congress a committee was appointed to investigate and prepare a bill for the various state legislatures to adopt, having for its purpose the creation of a workmen's compensation law. This committee has discharged its duty and made its report, filing therewith a copy of the bill it proposes for the various legislatures to enact into law.

From the preceding discussions and expressions of opinions it is very evident that the success of any workmen's compensation law as applied to the coal mining industry must be based upon the principle of uniformity throughout the various states. I do not believe it is possible in the nature of things to secure anything like uniform legislation by the legislatures of our states. We have heard these discussions and they have all been exceedingly able, offering good suggestions, indeed, but it seems to me that if the interest of the coal mining industry as well as the interest of the public is to be advanced, then it is necessary to get as far away as possible from state control of that industry.

A DELEGATE: Is National control any better?

MR. VINSON: Yes, infinitely. Assuming that the Congress has jurisdiction to enact legislation of this kind or purpose, let us see what it means. The suggestions embodied in the bill which I have prepared contemplate that there will be paid into the treasury of the commission by the coal operator one cent per ton on the coal mined, and one per cent to be deducted from the pay roll of the employees. That fund, based upon last year's production, would amount in round numbers to \$8,000,000, to be known as the Miner's Relief Fund, and as soon as a man was injured at the mine he would be placed immediately under the jurisdiction of the local physician, as all mines have local physicians. Let me say, however, at this point, that the commission would be composed of men who are skilled in the coal mining industry, from the mining to the selling of it, so that their knowledge would be complete. They would be selected from different sections of the country and each one would be an expert in that business.

THE PRESIDENT: The Chair regrets very much to cut off such an interesting discussion, but under the rule I am compelled to do it.

MR. S. A. TAYLOR, Pennsylvania: Mr. Chairman, I move that the time be extended to Mr. Vinson to amplify his argument. I know he is able to do it and it would be of very much more interest than general discussion.

Motion seconded and carried.

MR. VINSON (Continuing): I want to thank you one and all for this courtesy, and promise you that I will be as brief as possible. To illustrate, a man is hurt; he is then put under the immediate care of the local physician, and the physician from the commission, which would be a federal employe located somewhere in the district, would go immediately and take charge, acting together with the local doctor. While the injured man continued to be incapacitated his wages would go on and would be paid out of the Miner's Relief Fund. After he has recovered, the commission would cause a full investigation and report to be made of the extent and permanency of the injury and would pay to him such sum as would be a reasonable compensation for any permanent disability which he had suffered. This plan of compensation I think is a great advantage over the employer's liability laws, because in the enforcement of the liability laws it was very aptly stated this morning that it always means fight and long and expensive litigation in the courts. Under accident insurance laws the reports and statistics show us that for every dollar paid into the insurance fund it requires sixty cents to pay the cost, expense and profits of administering that fund, and the man who is entitled to compensation receives only forty cents on every dollar paid

in for his benefit. By the plan proposed, the man who is hurt begins to receive his compensation immediately, and if he recovers and is disabled there will be an allowance made to him that is just and equitable, to be ascertained and fixed by men who have full knowledge of the conditions and who have no motive to do anything more than fair and exact justice to that man. For these reasons I think the National Commission is greatly to be preferred over any other method of providing a just compensation for accidents and would certainly be superior to state supervision. In West Virginia—and no doubt the conditions are similar in other states—it would be well nigh impossible to have so large a fund of money administered properly and keep it out of politics. It is more than likely, if not reasonably certain, that the distribution of such a fund would be controlled by the political machine, to the detriment of the men who are justly entitled to it. This plan would operate to give the injured workman everything he is entitled to, and give it to him at once, without court or jury or any legal proceeding, and even without a demand, and the commission could give it to him in such sums and in such manner as would best suit his needs and wants. If he was the kind of man that would probably take care of his money and invest it in such a way as to secure to himself and those dependent upon him the full benefits of it, the commission would probably pay it all to him at once; on the other hand, they would pay it out to him or his family in monthly or weekly allowances, as the best interest of the beneficiaries might demand. Of course in the event of his death, those dependent upon him would be cared for and receive the fund in the same manner.

The idea is entertained by some that the employer should furnish and provide the whole of the relief fund. I believe that better results can be obtained if the employes contribute something to this fund, say, on the basis of one per cent of their wages. This would amount, generally speaking, to forty or fifty cents per month, and the employes would not feel it as a charge upon them, and yet it would relieve their minds from the feeling that they were to some extent objects of charity. If the party injured had contributed to the fund out of his own means, he would feel, and justly feel, that he was entitled to this compensation as a matter of right, and it would remove the idea of a charity or pension.

For the reason that the compensation would be just, and cover the extent of the injury so far as money can compensate for such injuries and the payment of it would be both immediate and certain, without charge or cost or delay of any character, it seems to me that this plan has a great advantage over any possible state action that we may hope for; because, do the best we can and use our best efforts to have a uniform bill adopted by the legislatures of the various states, we could not hope to accomplish this under eight or ten years' time, and then such legislation would not be uniform. If this fund is to be provided by a method that is uniform throughout all the states, it seems to me that a National law is the only possible way to achieve that result. Then such payments will, of course, in the first instance, be made by both employer and employe, but it can be charged to and borne by the industry itself. It will not have to come from the employer alone, nor from the employe, but it can and will go into the cost of production and the consumer must ultimately pay it, and this is a burden that the consumer ought to bear. If we should have a workmen's compensation law in West Virginia, and you do not have it in Pennsylvania or Illinois, or other coal producing states, then obviously the coal operators of West Virginia will have to bear that burden alone, and it will be impossible under competitive market conditions to bring about any uniformity unless all the states adopt substantially the same plan, but if it exists in practically the same degree throughout the whole country, then the burden would be borne by all in the first instance and ultimately refunded by the consumer.

A gentleman pointed out this morning the fact that when you wear out your machinery, tools and other implements used in the production of coal, the depreciation or loss is charged to the cost of production. Now, when we wear out human life and limbs in this industry, simple

justice demands that such loss should be charged to the cost of producing this commodity and should be paid ultimately by the consumer.

Let us consider for a moment, if you will pardon me, the operation of the Sherman anti-trust law upon the coal mining industry, and particularly in this connection do I desire your suggestions and your assistance, for, not only are we as coal mining men interested in having laws that will not depress our industrial enterprises, but the public at large is vitally concerned in securing and maintaining that freedom of trade which is consistent with the public welfare. In West Virginia the conditions are such that neighbors and friends engaged in mining in the same neighborhood and on the same seam of coal are such competitors in the market for the sale of their product that whether they will or no, they are absolutely destroying each other year by year and day by day. All right thinking men must conclude that that condition ought not to prevail in any industry, but I assume that the same conditions do, as a matter of fact, prevail in other states. I believe you will all agree with me that if the Sherman anti-trust law is carried out and administered as it is written, it will bankrupt 90 per cent of the industrial enterprises in this country. The only reason that we have today for enjoying the industrial and commercial prominence that we do is due entirely to the fact that the department of justice has been unable to execute the law, owing to the magnitude of the undertaking. The operation of that law naturally and necessarily if enforced means the "survival of the fittest." The small mine with an annual production of 100,000 tons located along side the large company that produces 2,000,000 or 3,000,000 tons can not sell or dispose of its coal for less than 10 cents a ton; he cannot produce it within eight or ten cents a ton as cheaply as the larger concern, and, as a consequence, the 2,000,000 ton production goes into the market in competition with the 100,000 ton production, having advantage of 12½ to 15 cents a ton in a lesser cost of production.

If we have a continuation of the Sherman anti-trust law operating and driving the small concern and the big companies into competition and enforcing that competition all the time, the result is that the little man must go out of business, although there is no unfair or illegal methods of competition practiced by the larger concern. The big producer has the ability to secure large contracts at advance prices. He possesses in many instances machinery, cars, docks, depots, boats and storage plants that are denied to its smaller competitors. The big concern eliminates the middle-man, his expenses and profits, and such a continual and forced competition, where the struggle is so unequal, must ultimately drive the little producer out of business.

I think you will quite agree with me that something must be done to save the small producer from destruction, and I have been unable to think of anything better than the establishment of the National Commission about which I have been talking. This commission would have the power, and it would be its duty to ratify and approve any reasonable contract or agreement between the smaller producer and the larger one that would eliminate the cost of sales and introduce greater economics in production. Or, if he desired to sell or lease his plant to the larger concern, the commission could grant him the privilege of doing so, without being subject to indictment and fines or imprisonment. But as the law stands today, if he were to undertake the execution of a plan whereby the smaller plant should desire to enter into trade agreements with the larger one, the lawyers in the case would tell him that he is in great danger of indictment and ultimately of serving a sentence in jail.

If this commission of expert coal men had jurisdiction of these matters and could administer the fund raised for the compensation of injured miners, it then ought to go further; it ought to have the power to prescribe the rules and regulations for the safe mining of coal. They could prescribe such rules much more intelligently than any legislation could possibly do it. You can select from this audience five men that would be infinitely better qualified to say how your mines in Illinois shall be served, how much air should be provided in this one and what

should be done to that one, than would be possible for your legislature. If this industry can be administered by the wisest, most experienced and ablest men connected therewith, then we may expect the best possible results; otherwise, I do not believe that we will be satisfied, or rather, I might say, our efforts here will not be as successful and will not help the industry as a whole over all the country nearly as much as if we had it under one general governing power, composed of men of your own kind.

MR. E. M. DELAVERGNE, Colorado: You did not state, I believe, who would pay the commission for the physician in the case.

MR. VINSON: That would be a government expense.

MR. DE LAVERGNE: You spoke of competition cutting the throats of these producers. You did not suggest any regulation that would prevent the producers cutting the throats of the consumers.

MR. VINSON: The check on that would be in the hands of the commission. If the producers went to the commission with a trust or monopoly agreement asking the commission to approve it, they would not approve it. In other words, the commission would stand not only to protect the coal producers, but the public as well.

MR. S. A. TAYLOR: Mr. Chairman and Gentlemen: In answer to one argument that Mr. Mayer raised, I would just like to call attention to Sections 5 and 6 of this law. In discussing this matter we have had just the argument brought before us that Mr. Mayer has raised, and I think if you read those two sections you will find that they take care of that very thought, namely, that the party who is injured is in a position to elect to take the compensation and he is virtually estopped from proceeding against his employer under the liability act. The wording of these sections is very concise and I will just read them:

Sec. 5. The provision made for indemnity of employes under this Act is and shall be construed as being in lieu of and in satisfaction of all claims for indemnity against any employer by any employe by reason of any injury received in the course of his employment, and the acceptance of any benefit under the provisions of this Act by any person or persons shall constitute a bar against any action brought by any such person against his said employer on account of any such accidental injury.

Sec. 6. The institution of any suit in law or equity by any employe against his employer for damages on account of personal injuries received in the course of his employment as aforesaid, shall constitute a forfeiture of said employe's right to receive indemnity from the fund herein provided for and the amount to which said employe would in the absence of such suit be entitled to receive from such fund, and in addition thereto his proper court costs expended in defending such suit shall be paid by the State Auditor (or other agency authorized to administer the fund) to said defendant employer upon the termination of such suit to reimburse him to that extent for the judgment and costs for which he may become liable in any such suit; the total amount of such payment, however, shall not exceed the sum of five thousand (\$5,000) dollars.

The point I wish to make is that in the preparation of this law not only have we discussed this thoroughly, but it was discussed by various members of the association before this committee took it up, and the primary object was this: If the person maimed or killed chose to enter suit against his employer, he would then not be permitted to get the benefit of this act. They either had to do one thing or the other. After they chose to receive the benefits under the compensation act they were estopped to proceed under the liability act. I believe this could be modified to make that clear.

MR. MAYER: This law does not make an employe come under. You catch my remark? In other words, it is not compulsory, Mr. Taylor, for an employe to come under this bill. He is free to take either horn of the dilemma. If he has got liability legislation he will take liability legislation, especially if all your defenses are removed like fellow servant, hazardous risks and contributory negligence.

If you have got those liability measures on your statute books as there are in some of our statutes, and you pass this bill, you can't compel the employe to come under this bill, and if you can't compel him to come under this bill he can then, if he has a good case against you, sue you under the liability act and stick you for any amount up to \$100,000 for permanent disability. If it is a poor case he will take the compensation provided in this bill. For instance, if he hasn't got any case he will take the benefits under the measure here, but if you have got laws on your statute books against you, which many of us have, he will take whichever horn of the dilemma will amount to the most for him, and what we maintain is that in passing this legislation that the defenses, those particular liability measures, applying to our business, should be removed.

MR. S. A. TAYLOR: Replying to that question, I will say that came up in some of the states and if they were not entitled to sue under the employers' liability act, they were entitled to sue under common law. In other words, an act such as this is questioned because it raises the question whether any man can be deprived of his common law right to sue for damages.

MR. HORACE J. STEVENS, Michigan: That is not a common law privilege, it is a statutory provision. The liability legislation is a statutory measure.

MR. S. A. TAYLOR: I understand that, but suppose, as in many cases, the states do not have a liability act and yet under the common law he can sue for damages, so that there is a question in drawing this bill whether any bill could be drafted by which the common law provision would be set aside; and in that event these two clauses that were placed in here were put there with that express purpose, that if they could force them to elect whichever benefit they would take, after they had chosen they would be estopped to proceed under the other.

MR. E. L. DELESTRY, Minnesota: Mr. Chairman and Gentlemen—I am not interested in coal mining, but I represent such immense interests in metal mining in seven different states that I believe I may be heard just for a moment and give you the experience we just had a few months ago with a similar measure in the state of Minnesota, which fell by the wayside by adverse decision of the supreme court. I wish to go on record here once and for all and as heartily supporting the metal states of the southwest in the position taken by Mr. Vinson of West Virginia. To attempt any state legislation to meet this issue is a hopeless task.

I was one of the committee appointed by the governor to frame a workmen's compensation law for the state of Minnesota. One-half of that commission was taken from the ranks of labor; the other half was divided into operators in iron, miners of building stones and manufacturers. We endeavored to place upon labor its just burden of the compensation act, and we have had sittings daily for three months and prepared the bill which we believed was equitable and wise, placing upon the ranks of labor 25 per cent of the charge of the compensation, and we placed in that bill a repeal of all liability acts then in existence. We sent that bill to the legislature, and it was passed. The very interests whom we tried to benefit, the laboring element, instituted a suit and beat us out in the supreme court this last year. Now you gentlemen speaking for the coal industry must kindly remember that some of us have similar interests in the metal mining industry, and if you are going to pass a workmen's compensation act we ought to have something to say on that subject. It was the metal industry that secured for you the Bureau of Mines. It was the metal industry that spent its time and money in Washington, and while we are tickled to death to have the coal men come in even at this late day and join hands, let us go along the lines of least resistance, and the suggestion from the gentleman from Virginia is in my opinion the only practical conclusion which we as mining men and employes can ever reach.

I had not intended to take part in this discussion. I would not go before another state legislature to try to get a compensation act through,

either in Minnesota or in Arizona, for all the gold there is in our mountains.

Now, gentlemen, if we have succeeded to get in the entering wedge by the creation of the Bureau of Mines, and there is the man (referring to the Secretary) you have got to thank as one of the men of five on our committee who was always on the job. (Applause.) We did the very best we could. We took what we could get as an entering wedge, and we even suggested the men who should run that bureau. Gentlemen, this is just the beginning of big things to come if we are to protect the industry, whether it be coal mining or what not, and the workmen's compensation system must be uniform and applicable to every branch throughout the United States or the United States Supreme Court will knock it higher than Gilroy's kite. You can't go into any state and single out one industry like coal mining and say we want this tax—it must be made to apply generally.

I have heard in the discussion something about paternalism in Germany. Thank Heaven we don't have to go to Germany. I know what I am talking about, because I studied in Heidelberg for four years. We can go to the Government of the United States and get such a measure as this advocated by Mr. Vinson, and my friends in Congress will surely support it and each industry that I represent will support it, providing the old liability legislation is wiped out. You have 44 states to fight with on one hand where you won't succeed, where you have only one United States Government, and when you get an interstate commerce proposition you will succeed. (Applause.)

MR. STEVENS: Mr. President, I would like to ask one question. If we secure a national compensation act along the lines suggested by the gentleman from West Virginia we will have left the specific statutory law providing for the collection of damages or the common law under which damages can be collected in every individual state in the Union. We will be caught coming and going, too.

MR. DE LESTRY: We have today a railroad commission to regulate railroad rates, and an interstate commerce court of last resort. That sticks, doesn't it?

MR. C. C. WOODSON, Arkansas: I wish to say this: Last winter we had a proposition something like this before the legislature at Little Rock, and there was one railroad attorney who came before the committee and said that the money which the railroad people paid out did not go to the man who was damaged in many instances. It went to attorneys, for court costs, and other things. He said the year before they paid out something like \$1,200,000. He said some of it was spent very unjustly. There was one party who got \$35,000, while probably 75 per cent of the cases that come before the court had been beaten, and he felt as a railroad attorney that if some kind of compensation bill could be worked out that it would be better for the laboring people, better for the working people, because 75 per cent of them that take cases into court get beaten. If some kind of equitable measure could be gotten up through Congress or some other way whereby the employes of the company when they were injured could get a certain amount of wages so as not to increase the cost that they had been to in this suit, it would be satisfactory to their railroad, and it struck me as a mining operator that it was a very good thing. Just like the gentleman from Kansas City, I don't feel that we ought to adopt a resolution asking Congress to tax 1 cent a ton for all the coal mined and then let the man who had a good case against us come in and sue for damages and get \$25,000. If they did I would not be in business long. I am not competent even to serve on a committee to consider these things, but these are points that the gentlemen who are on this committee should think about very seriously, and if we can work out this question through a compensation bill covering everything, why I say we ought to enter into it, whether metal miners, coal operators, or what we are.

MR. VINSON: May I answer the question asked me by the gentleman from Michigan? I had in contemplation that the Federal action in taking charge and jurisdiction and control of this matter would take the whole thing entirely out of state jurisdiction under the provision of the Constitution, that the Constitution of the United States and the acts of Congress are the supreme law of the land, placing us under the same jurisdiction precisely as that creating the Interstate Commerce Commission, which has denied to all states and state officials any interference with interstate commerce. This is Interstate business pure and simple. As the gentleman said, who has just spoken, the very fact that this law would provide that the party who was injured would get his compensation would be forever a bar from bringing or maintaining any suit; in other words, the operator would pay one cent a ton for complete indemnity against all suits.

MR. STEVENS: It might be absolutely unconstitutional.

MR. VINSON: As to the legality of that I have got a brief upon the subject, and I will be very glad to furnish the gentleman a copy.

MR. GLENN W. TRAER, Illinois: I wish to ask for information. Is it the view of the committee that this bill will protect the employer by reason of its providing that in the case of a suit by the employe under the common law or the ordinary statutory rights and a judgment in his favor, that this commission shall reimburse him? Is it the belief that the employer will thereby be fully protected against any sum that juries may see fit to give in an ordinary accident law? It seems it has limited the maximum amount which may be paid from this fund to reimburse for damages. In Illinois we frequently have verdicts much in excess of \$5,000, and the verdicts are increasing right along.

MR. J. W. DAWSON, West Virginia: Of course the committee understood judgments against employers would exceed \$5,000, but they thought that the amount, \$5,000, would equal the average amount of judgments that would be recovered against employers, and they did not think it wise to make it too large, for the reason it might run up, unnecessarily, and the charge would not let them out.

MR. TRAER: I would like to ask whether the committee then took into account the possibility that as soon as juries should learn that an employer was going to be recompensed in these ordinary actions at law out of this fund, as soon as they should learn that, what means could be employed to prevent them from simply increasing the verdicts which they had been in the habit of giving so far, and which, as I say, are increasing continually? What means could be employed in the view of the committee to prevent juries from simply making the verdict larger?

MR. DAVID ROSS, Illinois: I will say briefly in answer to Mr. Traer, that the principal consideration that the committee had in mind upon that proposition was to take this class of cases out of the jurisdiction of juries altogether. We have had now too much litigation on this subject, and it is not a legitimate subject for court decision. The entire purpose of this legislation is to dispense with the necessity of having lawsuits, and the experience of countries where such laws have been in operation has been to do away practically with the necessity of litigation at all. Now even in the governments from countries whose constitutions are very much different from ours, they do not recognize individual rights to the extent that republics have done, but in the fundamental law of those countries the right of an individual to sue his employer to recover damages is recognized and is fundamental. It is a serious question in law whether that privilege can be absolutely abridged; the bulk of legal judgment is that it cannot, and that you cannot under any system of compensatory legislation, or of liability law, take that privilege from men whether they be citizens of American republics or subjects of foreign countries. Under the British compensation law less than 4 per cent of damage claims have been litigated; 96 per cent of them have been adjusted without question, and

settled to the satisfaction of everybody under the compulsory law of that country, and that seems to be the experience of all the other countries that have had occasion and the necessity of enacting legislation such as that here proposed. Unfortunately, Mr. Chairman, it is more of a legal question than it is an industrial issue, and that is the obstacle today in the state of Illinois and in all the other states of the Union, and in the Federal Government. It is a question of just how far you can go in the way of law. To what extent can you determine and measure the rights of men? By what legal plan are you going to decide upon the equities between men and men? It is a legal question now, unfortunately so. We have been compelled here in Illinois in legislating upon this subject, to make our law optional. Practically ten other states in the last year and a half have enacted optional law. That means that the individual can accept the compensation provided for in the compensatory law, or that he might elect to disregard the compensation and sue under the general liability law. The opinion of the appellate court of New York, declaring invalid the compensatory law of that state because it was compulsory, has induced the other legislatures to pass such optional laws. The only general distinction in the list of progressive states on this subject is that of Washington. Instead of proceeding as we did in Illinois and in the other states passing laws providing for specified benefits, in Washington they have exercised what you might call the revenue power or the taxing power of the state, and providing for taxing, if you please, the different hazardous occupations, and from the proceeds of such taxation secure sufficient revenue to pay the compensation provided for in the law. Under that act while it is supposed to be a denial of the individual, legal idea of freedom of contract, as generally understood, the supreme court of the state, and providing for taxing, if you please, the different hazardous taking the view that inasmuch as it deals directly with the health and welfare and safety of the great wage-earning class of the state it comes necessarily within the police power of the state, and under that phase of the constitution the supreme court of the state of Washington has affirmed the validity of that law, and that act will be passed up for the consideration of the Federal Supreme Court of our country; and probably in view of educational influences that are everywhere at work on this and other problems affecting our life and our government, that court when it commences to consider that question may take the same view as the same court took on another question involving the real or presumed rights of individuals as it did in a case coming from the state of Oregon. The Federal Supreme Court affirmed the law of Oregon on the question as to the hours that women should be permitted or compelled to work, and it may continue that good work, as I hope it will, by endorsing the validity of the law of Washington making absolutely compulsory the compensation for accidents. We are coming to it and I don't think we can evade it. The issue is here in Illinois and has been for years back, as it is in every other industrial state of the Union.

THE PRESIDENT: I regret that I am compelled to cut short this discussion, but your time has expired.

Upon motion additional time was given.

MR. ROSS: I had practically finished with that branch of the argument. I simply want to emphasize and call attention to the excuses that the average man has got to make to his better judgment as a reason why he is against certain proposed laws. When this matter came up originally nobody seemed to be seriously concerned about it, but when public attention was riveted on it, when it threatened to become the subject of law and of legislation, then the interest that seemed to be against the trend of such legislation urged that they were in sympathy with the tendencies of such laws, but in order to make them effective it was necessary that they should be made uniform, and that none of us could move until every one of the 93,000,000 of people in this country were ready to move. That condition has never heretofore prevailed, and it never will. You have got to begin these great

reforms in the localities where the sentiments in their favor demand it, and that argument, that objection, has been urged before and can be urged against any proposition. It was urged by the employers of Massachusetts fifty years ago when the legislature of that state for the first time proposed the imposition of certain so-called restrictions, providing certain regulations in behalf of men and women engaged in the production of the wealth of that state. The manufacturers of Massachusetts made the objection, offered the criticism that localized employers are urging against this law, that its adoption would handicap them as competitors; that they would be shut out of the markets, and that it would mean ultimately ruin to their business. As a theory that looks all right, but it doesn't work out that way in practice. The manufacturer of Massachusetts lived long enough to realize that what they supposed was a handicap in business ultimately proved to be a commercial and economic advantage, and they never lost their place in the industrial scale, because of standing for and because of being primarily compelled to observe and adopt such regulations. Now, we hear the echo of that historic measure from certain states that have not yet sufficiently progressed to adopt such legislation as your report endorses; and that the employers living in the states yet under the old common law liability would be at an immense advantage over the employers conducting their business in states where compensation systems prevail. I think they have got the reverse English on that. I think that this advantage would be against the employer who is willing to stand the expense incident to the eternal test of what a man might recover under a general liability law, and not against employers who had come under reasonable compensation legislation.

I want to say to the employers of labor and the delegation to this convention is made up largely of that class of men, and I like it for that reason, I like to think that this program has gone far enough to receive a favorable consideration and the adoption of a report from a committee representing your membership as employers of labor who are ready and willing to take this important matter out of the hands of pettifogging lawyers and center it on a basis of humanity, settle it on a basis of right, on a basis of honest business. I want to say to that class of employers, whatever state you may come from, that when your state adopts this proposition, when you know for a certainty just what you have to do with people in the way of costs, and when the men whom you employ know when an accident occurs to them what is coming to them, without the necessity of a lawsuit, it will reduce the cost of production, it will multiply the profits to capital and enhance the labor. Let us take the great broad view of the proposition. Let us be governed, Mr. Chairman, as far as we can, by the experience of others, and let us confront the facts fairly and fully and not waste our time dilly dallying with mere theory and indulging in baseless fear. I thank you. (Applause.)

DR. E. R. BUCKLEY, Illinois: I would like to make this one suggestion if I may. I am very much interested in this discussion, but I apprehend that this entire matter will come before the resolutions committee, and that it will probably be threshed out by the resolutions committee and then brought on the floor of the Congress, and it is very likely that the gentlemen who are speaking now will wish to be heard on that resolution, and I would suggest that as the time is getting late and we are still on the forenoon program, that the discussion be postponed until the time the resolution comes before the resolutions committee and later before the Congress.

THE PRESIDENT: Doctor, I think you are misinformed. This is a report of a committee, and it is now before the convention for its adoption or rejection.

DR. BUCKLEY: I would move you then, Mr. President, that the report of the committee be referred to the resolutions committee for their consideration.

Motion carried.

MR. HARRY S. JOSEPH, Utah: Before offering a motion that I desire to propose I wish to say that some of us who have been attending the Congress from year to year in looking around among this gathering miss an old and familiar face, that of Col. Dorsey, who has gone to the Far Beyond since our last meeting. I move you, Mr. Chairman, that it be the sense of this convention that the committee on resolutions bring in a suitable resolution of respect in honor of Col. Dorsey, he having served this Congress in the capacity of director for many years.

MR. S. A. TAYLOR: I want to second that motion, but I wish to state that already there has been under consideration not only Col. Dorsey, but several other prominent mining men, with the intention of bringing in a resolution for each one of them.

Motion unanimously carried.

THE PRESIDENT: We will now be favored with an address on "The Copper Industry," by Horace J. Stevens, Houghton, Michigan.

Mr. Stevens' paper will be found at page 146 of this report.

THE PRESIDENT: The next subject is a very important one and is to be discussed by the different state mine inspectors in attendance, "How to prevent Mine Accidents." The subject is now open for discussion. I am sure there are quite a number of mine inspectors here as delegates, and I hope that some of them are in attendance this afternoon so as to speak to us on this subject.

MR. S. A. TAYLOR: There are quite a number of the mine inspectors in attendance, but they have evidently left the room, and I would suggest that that subject be left for tomorrow morning.

THE PRESIDENT: If there is no one here to speak on that subject we will proceed to the next one, "Federal Investigation of Ore Treatment Problems," by Mr. W. N. Searcy, Silverton, Colorado.

Mr. Searcy's address will be found at page 196 of this report.

MR. H. O. GRANBERG, Colorado: Mr. Chairman, I would like to know if General Irving Hale is here, and whether that part of the program will be discussed.

SECRETARY CALLBREATH: Mr. Hale is not here. He is very ill, having suffered a stroke of paralysis about ten days ago. We have a statement by the other two members of his committee that in consequence of the illness of General Hale it will be impossible for them to make a report.

MR. GRANBERG: I would like to hear something on that subject. I have some information that I would like to impart to the Congress on electrical smelting of the precious ores.

SECRETARY CALLBREATH: This committee had nothing to do with that. Its work covered only electrical installation in mines.

MR. S. A. TAYLOR: Your committee on electrical standardization for coal mines have no special report to make other than to report progress and to state that the report which they made to the last convention in Los Angeles was adopted almost verbatim by the Pennsylvania state legislature in their mining laws this last year, with only a few minor changes to comply with certain statutory rights and duties imposed on mines by other officers of the state. Outside of that, Mr. President, it was adopted practically verbatim. We have had no objections to the report made to the last Congress; on the contrary, we have received a great many very commendatory letters from different sections of the country, stating that the practices suggested in that report were in their judgment proper. I presume that this year will show forth the weaknesses, if there be any, in that report in the actual practice, or rather putting it into practice in the state of Pennsylvania. Outside of that we have nothing to report but progress, and we would suggest that this same committee be continued. There is a possibility that this year we may receive some suggestions along the line of modification after the actual putting into practice of our report.

MR. GRANBERG: I would like to inquire if this committee on the use of electricity in metal mining will be continued, owing to the absence of Mr. Hale, or will that subject be under discussion now or at some future time?

THE PRESIDENT: That is entirely a matter for the convention to decide.

MR. GRANBERG: It is a subject that I am very much interested in, and I would like to see that subject opened up and discussed. I have made a close study of it for some time and I don't think it should be passed without discussion. It is too bad the chairman of that committee could not attend.

THE PRESIDENT: In view of the fact that the committee is not ready to make a complete report and the suggestion by one of the gentlemen, I think it would be a good idea, if there is no objection, that that committee may be continued for another year. There being no objection that committee is continued.

Whereupon an adjournment was taken until 8 o'clock p. m.

WEDNESDAY, OCTOBER 25, 1911.

Evening Session.

The meeting was called to order by Mr. S. A. Taylor.

THE CHAIRMAN: The first paper we will have this evening will be by Mr. Glenn W. Traer, Chicago, on the subject "Anti-Trust Laws in Their Relation to the Mining Industry."

Mr. Traer's paper will be found at page 270 of this report.

THE CHAIRMAN: I am sure we have listened with a great deal of interest to Mr. Traer's paper. We have another paper by Mr. D. W. Kuhn, of Pittsburgh. Mr. Kuhn is unavoidably absent, and Mr. James W. Wardrop, of Pittsburgh, will read his paper.

SECRETARY CALLBREATH: Mr. Chairman, I would like to say that Mr. Kuhn understood he was to be here tomorrow night, and that we were to have this part of the program at that time, but the order was changed to meet other conditions, and in consequence of that Mr. Kuhn is not able to be here. Mr. Kuhn will be here at the time originally fixed for the discussion of the subject.

Mr. Wardrop then read Mr. Kuhn's paper, which will be found at page 257 of this report.

Mr. Walter Williams, of Illinois, then addressed the convention upon the subject discussed in the two previous papers.

Mr. Williams' address will be found at page 280 of this report.

THE CHAIRMAN: Mr. Chapman, we would like to hear from you.

MR. H. L. CHAPMAN, Ohio: Mr. Chairman and Gentlemen: I can say I am fully in accord with the ideas presented in the two addresses that have been read on this proposition here tonight, and those of the gentleman who has just spoken. I hope that something will be brought about as the result of this discussion before the Congress that will benefit the coal industry of the country and get it out of the chaotic and disastrous condition in which it now is.

Whereupon an adjournment was taken until 10 o'clock a. m. October 26.

THURSDAY, OCTOBER 26, 1911.

Morning Session.

The meeting was called to order by President John Dern.

THE PRESIDENT: The convention will please come to order. I believe the secretary has some announcements to make.

SECRETARY CALLBREATH: I am requested by Mr. Eli T. Connor to request all members of the Mining and Metallurgical Society of America to meet in the red room immediately upon the adjournment

of the session. The visiting ladies are requested to meet in the red room at 1:30 o'clock sharp. The local committee has arranged some entertainment for visiting ladies.

The resolutions committee has been only partially selected. Those states which are not represented should provide a representative this morning because the time is short which the committee will have to work, and the committee is in session right now. The other states should act as promptly as possible. I will call the roll, and the states that are not represented will kindly respond at once.

The Secretary then called the roll of the states and the membership of the resolutions committee was announced as follows:

COMMITTEE ON RESOLUTIONS.

Alaska, George E. Baldwin.	New Jersey, Henry B. Kummel.
Alabama, Dr. E. A. Smith.	New Mexico, T. H. O'Brien.
Arkansas, J. E. Finney.	New York, W. W. Miller.
California, Nat H. Wheeler.	N. Carolina, Dr. Joseph Hyde. Pratt.
Canada, H. H. Lang.	Ohio, Lewis T. Wolle.
Colorado, E. M. De La Vergne.	Oklahoma, James Elliott.
Georgia, E. L. Martin.	Oregon, T. C. Burke.
Idaho, Ralph Nichols.	Pennsylvania, Eli T. Connor.
Indiana, Jabez Wooley.	South Carolina, H. L. Scaife.
Illinois, David Ross.	South Dakota, W. J. Blake.
Iowa, G. F. Kay.	Texas, R. J. Broman.
Kansas, J. N. Hodges.	Utah, Harry S. Joseph.
Kentucky, C. J. Norwood.	Vermont, George B. Milne.
Michigan, F. W. McNair.	Virginia, Van Ness Hermance.
Minnesota, C. E. VanBarneville.	Washington, A. J. Reed.
Missouri, W. J. Jenkins.	West Virginia, Z. Taylor Vinson.
Montana, F. W. C. White.	Wisconsin, Prof. W. O. Hotchkiss.
Nebraska, Erwin H. Barbour.	Wyoming, George L. Black.

THE PRESIDENT: At yesterday's afternoon session we passed one of our most important subjects for the reason that quite a number of the state mining inspectors were absent. As this is an important theme we thought best to postpone it until this morning so as to give all of those men a chance to speak on the subject of how to prevent mine accidents, under the ten minute rule. Understand, no one is to speak longer than ten minutes as we have an extensive program for the day. I will first call on Mr. James Taylor, state mine inspector of Illinois, who will lead the discussion:

MR. TAYLOR: Mr. President and Gentlemen of the American Mining Congress, and Ladies: One of the most important subjects before this Congress is that of mine accidents in and about coal mines. It is a question that has been discussed in our National organization of inspectors, and we feel as inspectors of coal mines that there should be a change. Since this Congress has convened eight persons in Illinois were killed in a coal mine on Monday, simply because the one necessary thing to prevent accidents is individual effort of each and every person in or about coal mines was lacking. Our system of mining coal is radically wrong, and the time has come, gentlemen, when the inspectors feel that a change should be made for the benefit of those working in and about coal mines. You can legislate all you please, that is not going to prevent accidents in our coal mines.

I desire, Mr. Chairman and Gentlemen, to read from my report to the Labor Bureau of Illinois, made two years ago. In my text at that time I wrote the following. You will find it on page 351 of the coal report for 1911.

Mining Laws Printed in Foreign Languages.

The greatest number of accidents in coal mines occur singly, and should teach us the importance of individual effort in preventing and reducing their numbers.

The increase in the number of non-English speaking miners, renders a close oversight over these workmen imperative; they should receive such instructions and training as would enable them to take care of themselves and those with whom they are working.

When we take into consideration that the majority of the men now mining coal in this state are unable to speak the English language, we shall better understand the importance of educating and training of this foreign element, who are not only foreign to our language, but are entirely foreign to any knowledge of our methods of coal mining.

I would suggest, that a set of questions be arranged, with answers, in the various languages and given to each foreign miner working in or about our coal mines; and he should not be allowed to work alone in a coal mine until such time when he is able to speak and understand the following English words and phrases: Want props; way to escape shaft; way to hoisting shaft; air-course; close the door; fire, bad roof; set a prop; look out; roof falling; keg of powder; explosion; gas, danger, keep out; have no light on head when handling powder; get on the cage; get off the cage. They should also be thoroughly instructed in the state code of signals, and how to reclamp the hole in the powder keg after each charge is taken out. The Slav, Pole, Hun or Italian is not willfully more careless than the American speaking miner, but he is inexperienced and ignorant of our language, hence the necessity of his being taught the meaning of such words and phrases as have been mentioned, before he is permitted to work by himself in or around a coal mine. He should also be required to work with a foreign, American speaking miner, until such time that he is competent to understand and speak the foregoing English words. The mining law should be printed in the principal foreign languages parallel with the English language.

Regulation of Electrical Mining.

The increase in the number and use of electric mining machines and motors has been noticed during the last few years, and nowhere more marked than in connection with coal mines of this state.

The electric mine locomotive has done for underground haulage what the trolley car has done for the surface. It has come to stay with us and must be taken into account in the product of our mines. Up to this time we have no legislation in Illinois regulating the installation of electric machinery in coal mines. No one can deny that there is danger connected with the use of electric power in and about mines, yet there has been no law enacted along these lines.

In compliance with section 12, paragraph (i) of the general mining laws, I would recommend the passing of an act regulating the installation of electric machinery in and about coal mines and establishing a standard method and practice in installing electric machinery in mines.

First Aid Work in Case of Accidents.

I am desirous of seeing at each mine in this district, the establishing of first aid companies, or squads; the results of first aid work in case of accidents cannot be too highly commended, it not only trains men, immediately available for rescue work at time of an accident, but prompt treatment given the injured prevents unnecessary suffering.

The importance of this work should be recognized by all operators of shipping mines not only of this district but of the state, and I hope that they will take the matter under advisement; and if any coal company or set of miners desire to establish a first aid squad and will let me know, I shall be glad to help, and do all in my power in teaching such a squad how best to perform this humanitarian work at our coal mines.

I would appeal for volunteers from each mine in my district to form a first aid squad, the work must be entirely voluntary, and no pecuniary inducements of any sort are to be considered. I will endeavor to prevail on the coal companies to furnish all equipment necessary so that men volunteering for this work will be put to no personal expense; however, I desire that every man shall feel that he is doing philanthropic work and may thereby possibly save the life of many badly injured miners and be the means of placing them in the hands of a surgeon in a much better condition than would be possible without the first aid work.

In case of accident the essential points are—a knowledge of what to do; promptness; self-possession and perseverance. Who will make the first call? What coal company will be the first to provide one or more cars for no other purpose than to be used in conveying injured persons in your mine to the surface. They should be long, low, and wide without ends, having a spring mattress to support the stretchers. Such a car will save many a miners life.

MR. TAYLOR (Continuing): Gentlemen, I spoke of our system of mining coal. Our system is wrong. As one of the inspectors of Illinois I have again and again remonstrated against our system. Our system of mining coal should be classified. It is a trade, and the men that we have today handling powder in our mines should be selected. Some men in our coal mines are fit for nothing else than to load coal; others should handle the powder, fire shots; others should handle machinery, and when this classification comes to us I feel that our accidents, at least in Illinois, will be reduced. Each individual should be taught that he is responsible for certain conditions. Most of you know that some time ago here in Illinois it was the lack of individual effort on the part of two men at the Cherry disaster that caused 265 men to lose their lives. It is the lack of individual effort in every accident that we have ever had in the state of Illinois. Individual effort should be made, and if it were made these accidents would be reduced. For that reason I am in favor of the classification of workmen in our mines. Who was called upon to take the responsibility of the disaster at Cherry? Who was called upon to risk their lives? It was the mining inspectors of Illinois. We are the fellows. They think it is our duty. Gentlemen, I want to say that no person in this meeting today is more anxious, more interested in the reducing of accidents in and about the coal mines than your state mine inspectors. (Applause.)

MR. ANDREW STEVENSON, State Mine Inspector, Michigan: Mr. Chairman and Gentlemen of the American Mining Congress: I have listened very attentively to the remarks that have been made by the delegates to this convention and I think many of them have been appropriate to this occasion. But, while the discussion was going on, I thought how much grander it would be if the remarks were put into practice. You are all aware of the fact that actions always speak louder than words. Words in this day and age without work are like faith without works, both being alone. Gentlemen, when the Honorable Chase S. Osborn, Governor of Michigan, gave me my commission to attend this convention as a delegate, if I understand the Governor right, and I think I do, I do not believe it was his intention that I should come here to see and be seen, but as a disciple to learn and listen to the arguments and ideas presented here by the able men that attend this convention.

I would like to make a few remarks along the lines of the discussion yesterday in regard to compensation and what should be done in order to prevent so many serious disasters happening in the future as there have been in the past in the coal mines of the United States. I do not think I could do better on this occasion than to tell a little of my practical experience as a miner. I recollect not long ago one case in particular of a man who was hired to mine coal. He was given a place to work in and a kit of tools and mining supplies, but after being shown his place to work he did not know anything about coal mining.

He was at a loss to know what to do in order to get coal ready for the next day. He depended solely on the men around him for information of what he had to do to mine coal. I remember the advice one of the miners gave him. He said: "Inasmuch as you do not know anything about coal mining, I will show you how it is done." He showed him where to drill a hole and told him how much powder to use. He said to him: "After the cartridge is made place one end of the fuse in it and split the other end, then light the fuse and run to a place of safety." But, instead of the man cutting off three or four feet of the fuse, which would have been sufficient for that shot, he put one end of the fuse in the cartridge and split the other end of the coil some fifty feet in length. Gentlemen, that is a sample of the men that are sometimes hired to mine coal. If that man had been injured, or if he had injured or killed some one else, either that day or a month or so later, would he have been responsible? Not knowing the dangers attached to coal mining, I do not think he would, neither do I think compensation should cover a case of this kind. What the miners want is a preventive for accidents along these lines.

I know of another case which happened where a man was given work and when lunch time came the men working around him invited him to come out and have lunch with them, but, instead of that, he got his pipe and tobacco and commenced searching for a match after hunting around for some time he finally found one in his coat pocket. That man had never been in a coal mine in his life before, and was so unaccustomed to the use of a lamp that had he not found a match in all probability he would have gone without a smoke all day. What the miners want are laws to prevent men of that kind from being injured in the mines or injuring any one else.

Again, we will say that we have many mines that have electric plants installed for the purpose of running coal cutting machines and motors for hauling coal. The system of haulage may be motor or the head and tail rope, but there is no other way for the men to go to and from their work but on these haulage roads, and in going or coming from his work the miner may meet a trip of coal cars and in a hurry to get to a place of safety his light goes out, leaving him in darkness. In order to get out of the way of the trip he squeezes into the first opening to avoid the cars, but being in the dark he may not be clear of the track. When the trip comes along he probably is injured or killed. Would compensation be a remedy for a case of that kind? The miners think not. It is a preventive they want for such a case.

In some of the same mines there is considerable powder used, but, in order to save the coal company the expense of building a special car that would be non-conductive of electricity, and paying a man to take the powder in when there is no current on the wires, the company will send that powder down in the morning, put it in a steel or iron car and tell the mule driver to take it in with him. The probabilities are, just as it happened the other day when eight men lost their lives, that he may run into a live wire with that car load of powder. It explodes and the man is killed. Is compensation to cover a case of this kind? No; it is a preventive that we want.

In regard to cages and how constructed. We have laws that say every hoisting shaft must be equipped with substantial cages fitted to guides running from the top to the bottom; said cages must be safely constructed; they must be furnished with suitable iron covers, not less than three-sixteenths of an inch in thickness, to protect persons riding thereon from falling objects. The cages must be equipped with safety catches, which catches must be examined daily by the mine owners or their representatives. Cages, catches and rope fastenings shall be examined daily, and cages tested by drop quarterly, and a record of these examinations shall be kept by the company. Now, that part of the law is all right, but when the coal companies do that, does it justify them when they put on hoisting ropes in leaving them to remain on until they become crystallized or brittle and break? When nine times

out of ten the cage never stops until it reaches the pit bottom, if it should happen that there were men on the cage when the rope breaks, and there have been cases of that kind, there can only be one result and that is the men on the cage are killed. Now, I think what the miners want is that every precaution should be taken for their safety in the line of hoisting ropes: Then, when that is done and an accident happens, give them compensation.

We have mines running today that have veins of coal five or six feet in thickness, and are worked under the room and pillar system. I will say, to illustrate a case in one of these mines, there is an entry with twenty or thirty rooms turned off it. Ten or twelve of the rooms may have been worked out and part of the pillars between rooms drawn, letting the roof fall, perhaps to the height of twenty or thirty feet, or perhaps to the rock which may be a few feet more or less. That being a gaseous mine gas no doubt would accumulate in that dome or high place. The wrecks of the rooms still standing, air, if there was any in circulation in those abandoned rooms, would not go any higher than the thickness of the vein of coal. Some day a miner may be passing these abandoned rooms when a fall of slate would take place where the gas has gathered, driving the gas out on the miner's naked light. The result would be an explosion. If it should be a dusty mine perhaps causing a dust explosion, killing all the men on the entry. Now, I believe the miners want laws that will compel coal companies to exercise all due precaution in the operating of their mines, so that accidents could not happen along these lines, and that no foul nor obnoxious gases that are dangerous to breathe could get out of these abandoned rooms and get mixed with the air that men have to breathe to the extent that their health would be impaired.

Then, again, we will say that there are mines here in Illinois and in other states that have been running for thirty or forty years, and the escape shaft may not be over 100 feet or so from the main hoisting shaft; while the working places may have been extended back a mile and a half or perhaps two or three miles. When the men are all at work a fire may take place and the men cannot reach the escape shaft nor the main hoisting shaft, just as in the Cherry disaster. What would be the result? The men would lose their lives. Would compensation be any recompense for the mothers, wives, sisters and little orphan children who had lost their dear ones in that mine? No, indeed! What I think is required is a law enacted whereby accidents could not happen from such causes.

The subject of compensation is secondary to that of mine fatalities. They have been occurring so often in the past that we think something should be done to try and stop accidents happening from the sources that I have mentioned. Give us laws of that kind and see that they are rigidly enforced. I realize that just as long as there are coal mines and railroads there will be accidents, but let us see to it that we try every way in our power to make them as few as possible.

MR. H. S. JOSEPH, Utah: I move you, Mr. Chairman, that the subject matter contained in the annual address of the president of the Congress be referred to the committee on resolutions, with instructions to draw up such a resolution as the matter in the address may suggest.

(Motion carried.)

MR. JOHN VERNER, Iowa: Mr. Chairman and Gentlemen of the American Mining Congress, I was not aware until a few moments ago that I would have the privilege to address you on the subject of mine accidents and I shall only state very briefly my views as to the fundamental requirements for their prevention. This morning I saw displayed on the floor below a number of appliances intended to be used to provide an increased measure of safety to life and property in the mines. These appliances have merit, and commendation is due the men who invented them and placed them on the market, but the fact remains that the mere providing of mechanical devices, commendable as it is, cannot be depended on to assure safety. It has just been said by Mr. Taylor of

Illinois, that individual effort is required for the elimination of mine accidents and I fully agree with him, but I desire to add that individual effort, supplemented by the intelligent co-operation of all mine employes, promises still better results, for the safety of a mine depends and must always depend on the combined efforts of all connected with it, from the trapper boy to the superintendent and manager, and in order that these efforts may produce the best effects, it is necessary that the mine worker be taught to understand and appreciate the nature and possible extent of the dangers incident to mining, to the end that with the full knowledge of these facts he may be better prepared to protect himself and others against these dangers, and that he may also more fully realize the need and value of prompt and intelligent action to prevent them from getting beyond control. The human factor in the prevention of mine accidents is paramount and the man who, in case of an incipient mine fire, for instance, uses his dinner pail filled with water or his coat promptly and effectively to put out the fire, is of vastly more importance in the preservation of life and property than the installation of many alarm gongs in a mine or even a well equipped fire fighting apparatus stored at the bottom of the shaft or possibly on the outside. (Applause.)

THE PRESIDENT: Is Mr. Botting of Washington present? We are waiting for Mr. Botting to return, and I will call on Mr. Rutledge of Illinois in the meantime. Is Mr. Rutledge present?

During the short intermission, waiting for Mr. Botting to return, I will give the members present an opportunity to introduce any resolutions which they may wish to introduce this morning, which would come under the beginning of our regular program for this morning.

The Secretary then read resolution No. 7, which was referred to the committee on resolutions.

Resolution No. 7, Introduced by H. O. Granberg, Colorado.

Whereas, There are known to be several experimental processes for the smelting and refining of metals and some in practical operation on iron and magnetic cobalt and nickel, silver ores, and

Whereas, It is claimed this system is capable of recovering a larger percentage of all metallic values than has ever been recovered by any method heretofore employed; therefore,

Be It Resolved, That the American Mining Congress appoint a committee of three members, consisting of one electrical engineer, one metallurgist, and one metal mine operator, to fully investigate the practical and commercial utility of the several systems now claiming to smelt and refine metals by the electrical process.

THE PRESIDENT: Mr. H. G. Davis of Pennsylvania.

MR. DAVIS: Mr. President and Gentlemen, of the American Mining Congress: At my own solicitation I am glad to have the opportunity to stand before you today as a representative of the hard coal mines. We in the anthracite region of Pennsylvania have our accidents and they are very numerous. During the last four or five years we have made special efforts with the intention of reducing these accidents.

We have had organized in the various towns and cities in the region what are known as district mining institutes under the auspices of the Y. M. C. A., and the mining men of the different localities in Lackawanna, Luzerne and Schuylkill counties, and we feel as though we are up against a proposition that we cannot remedy or relieve very greatly. It is true that the number of accidents have been reduced by the concerted and individual efforts made along this line, but we do not feel that we are in a position as yet to make any boasts with regard to it. However, we want to say to you that we are victims of circumstances.

Mr. Taylor of Illinois just told us that the system is wrong. That, of course, refers to Illinois. Our system is also entirely wrong. The Welsh, English or German or other intelligent miners have all been ostracized or banished from our region. We have a law that compels an intelligent man to work in our mines two years as a laborer before he can become qualified as a miner, with the result that the non-English

speaking miner comes to our regions, and he has friends or he makes friends very shortly, through whom he secures a miner's certificate. We have a board of examiners composed of about twelve miners for each county, who are supposed to examine these miners, and the applicants are supposed to be intelligent enough to answer twelve questions in the English language before they can receive a certificate of competency. How they get those certificates we are unable to tell, but an applicant comes to the top of our shafts or slopes, and, of course, he is asking for a chamber (thus meaning a place to cut coal). The mine foreman says: "Do you understand gas?" He doesn't understand the question. And then this question is put to him in this way, he says, you forstay gas? Oh, yes, me forstay gas. Me burn gas in number eleven, and me burn in Malby. He knows all about it. He has been burned by gas twice. (Laughter.) Now, the mine foreman has very little choice. I know of one mine foreman in the city of Wilkes-Barre, who once said "I will not employ any of those fellows if I don't get a car of coal out." That was several years ago, and he kept that up until he had 133 places standing idle. That is quite a proposition. The superintendent finally told him you have got to hire some one to get coal out. What did he do? He was compelled by force of circumstances to employ men who really didn't know anything about mining, but they were qualified by the state board of mine examiners.

Now, as one of the individuals who has got to contend with these circumstances and their results—not a mine inspector, however, but I want to say for the mine inspectors of the anthracite region that they are all a conscientious lot of fellows. They generally live a considerable distance from the mines, and before they know of the mine fires we generally put them out. (Laughter.) Before they read in the morning papers that we have had an explosion, the dead and injured are all taken care of, and then the mine inspector does his part. (Laughter.)

I don't know anything about Illinois coal inspectors, but I don't want the anthracite inspectors to get the credit that belongs to others, and permit me to state to you, gentlemen, that the mine foremen and mine superintendents are the men who are generally on the ground when the accidents occur, and are the men who are supposed to face the music. They have to contend with the conditions existing and not the mine inspector, as described by Mr. Taylor to this Congress. I do not know, of course, what the conditions are in the state of Illinois, but am satisfied that the men behind the guns in the state of Pennsylvania, especially in the hard coal fields, are the mine foremen and the mine superintendents, but what I wish to say is this, personally, I have no objections to the law qualifying a miner, but I do object when an Englishman or Irishman or Welshman, or any man who has practically been brought up in the coal pit, comes to our region and is compelled to work for two years as a laborer for a Polander who never saw a coal mine in his life, before he can be qualified as a miner. It is true he can lie and he can get somebody to vouch for him, and within three weeks after he reaches us he can be qualified as a miner. Now, I have always thought that the law is wrong in the first place. There should be no specified time, in other words, cut out the service clause. I am willing to qualify a man and I am willing to put him on his merits, and I believe that the accidents in our mines are to be reduced only by the concerted effort and the individual effort and the education of the men that have got to work in the mines. I know of no other way to do it better than that. I don't believe you can make laws that will do it. We have in Pennsylvania laws enough to take care of the coal mining industry in the United States and the United Kingdom together. (Laughter.) What do they amount to? Nothing. We have rules of the company that I work for and we, ourselves, violate them sometimes. We ought not to have any rules that we cannot enforce. We ought not to have any rules that we could not insist on being obeyed at all times.

Gentlemen, I think it is up to the Mining Congress and other mining institutions of this state to request the gentlemen who are representing us at Harrisburg to repeal the law. (Applause.)

THE PRESIDENT: Is Mr. Botting here?

MR. D. A. BOTTING, State Mine Inspector, Washington: Mr. Chairman and Gentlemen of the Congress: I didn't come here prepared to make any speech on mine accidents. I have listened with a great deal of interest to Mr. Davis of Pennsylvania giving the mine inspectors a rub, but I don't altogether agree with him on that. Mine inspection is one of the problems that all states have to contend with. The great trouble I find in the duty of mine inspection is that the mine inspector is not clothed with enough authority to enforce his ideas or even enforce the laws on the statute book. We have a lot of laws in the state of Washington, and I think there are laws in the other states, too, and when we close a mine down the operator has a chance to go to court and put the case before the judge as to why we shut it down, and he goes back to the state board of mine inspectors as to the reason. In plain English, the mine inspector is between the devil and the deep sea. He has got the mine examining board on one side and the mine operators and the mining engineers on the other, and if he goes into court, or if he doesn't go to court, the question is turned over to the state mine examining board. If they see fit to turn down his rulings or opinions on this particular question he has to go away back and sit down.

Now, mine inspectors in my opinion, the majority of them, are very hard working officials. I was the only inspector in our state for the last seven years. Last year I had an assistant given me. I worked probably more hours than any other man in the state of Washington. I have been subject to telephonic and telegraphic communication for eight years and I never had a vacation. I have, however, given this matter considerable study and I believe that one of the things that has never been discussed and which every inspector has to go up against in preventing mine accidents is that you have got to get at the individual as well as the operator. In the old countries, like France, Germany and Belgium and England, they provide punishment for the individual for the violation of the laws and rules governing each town, and I think that the mine inspector should get down and advocate a law of that kind in the United States and every state in it, and then we will begin to cut down our individual accidents. I find that in going to our mines the miner is working at the face of the roof, probably they are back fifty or sixty feet from the face. We have a cap rock in our district and it sounds pretty good, and all at once the rock goes down, and two men gone. Now, those men should be liable to punishment for not keeping the timber up in the mine. And if they fail they ought to be punished. If they keep the timbering up the cap rock would have no chance to come down. I don't know how many of the inspectors will agree with me on that proposition. But I think that is one of the weak parts in all state mining laws, that there is no provision whereby a miner can be punished for violating the laws and rules, outside of removing the gas light or something of that kind. They are not subject to punishment for the negligence which causes those individual accidents.

Now, in my state I will give you an illustration of what occurred two years ago last February. An accident occurred in a little mine in Lewis county. I had intended to put on safety lamps, but there was very little gas in there, I thought, it was only in driving the chutes. I had permitted the men to keep a safety lamp open up to this time and every once in a while a fellow got burned and probably two, and there was a fellow killed. I issued an order that they should put safety lamps in that mine. Now, I want this Congress to understand that it was not once in three weeks that there was gas in those chutes. The result was that thirty-five of the miners quite that day, and the superintendent sent for me and told me he could not run the mine. I told him "I don't care whether he ever run it or not," and I have not had a man burned in those chutes since, and that is going on three years. (Applause.)

My idea of preventing men being burned in any mine where gas is generated, and I don't care whether it is once a month or once in six

months, if you work that mine with safety lamps you are not going to have any men burned. In our country the mining conditions are very much different from most of the mines in the east. We mine coal from seven up to eighty degree pitch. We work in those pitches and in some of those levels, and we mine coal as high as 800 feet off the level, and carry our timbers, and the men use only our safety lamps all the time. While it may be inconvenient for most of the men, it is better to have a little inconvenience than to have men killed. I got a law through our legislature two years ago, not this last session—providing that no safety lamps should be used in the mines unless they were hermetically locked. The reason I did that was that I found upon searching the different men that every once in a while I found a key in a fellow's pocket that would open those lamps, and I began the system of making search. After I found those keys I punished those men, and that is one of the offenses they can be punished for in our state, that is, for carrying keys to open those lamps, and we fined a great many of them \$75 and costs. That didn't stop the practice at all, so I got back and cut out the key lamps entirely. I have the fire boss use a key lock lamp. I found that on two occasions here in the last year that two of my fire bosses got burned just from having that privilege. They got up into the fields and backed down a bit and thought there was no gas there, opened the lamp and struck a match, and two of them were in the hospital for two months.

One of the other things for which I made provision was to have signs up one foot wide and two feet long, indicating the direction of escape out of the mine. I am now one of the mining commissioners, appointed to revise the mining laws of our state, and I propose to insert in the laws of our state a law that every employe has got to walk out through the escape at least once a month. (Applause.) I would like to have the mine inspectors say that the employes should be punished for the violation of mining rules. (Applause.)

THE PRESIDENT: Gentlemen, I think this concludes this discussion, and you will now have the pleasure of listening to an address by one of your directors on the subject of the present condition of the coal mining industries, Mr. B. F. Bush of St. Louis. (Applause.)

MR. A. J. MOORSHEAD, Missouri: Mr. Chairman and Gentlemen: I am here representing Mr. Bush, who, I regret to say, was unable to be here. When I was in Mr. Bush's office the other day he introduced me to some gentlemen and he said there that next to himself I was the greatest coal miner in this country. I replied and said that I had questioned his title to first honors for several years, that every time that I had undertaken to do it he knocked me down, and a gentleman present said: "That is nothing, you got away lightly, he killed a man here this morning." (Laughter.)

Mr. Chairman and gentlemen, I hardly feel that I am a fair representative substitute to prepare and read an address for Mr. Bush. However, on account of other duties, it was a matter of impossibility for him to take up the subject and be here, much as he would have liked to have attended.

Mr. Moorshead's paper will be found at page 246 of this report.

THE PRESIDENT: Gentlemen, while we no doubt all regret very much that Mr. Bush could not be with us and present his views in person, yet we believe that Mr. Bush in selecting Mr. Moorshead has chosen a very capable substitute. The subject just treated by Mr. Moorshead is now open for discussion. I am sure there are other gentlemen who wish to speak on this matter and I will call upon Mr. Walter S. Bogle of Chicago.

Mr. Bogle's address will be found at page 254 of this report.

Whereupon an adjournment was taken until 2 o'clock p. m.

THURSDAY, OCTOBER 26, 1911.

Afternoon Session.

The meeting was called to order by the President.

THE SECRETARY: The members of the resolutions committee will meet in the red room at the north end of the hall at once. The committee is now in session.

MR. H. S. JOSEPH, Utah: Mr. Chairman, I would like to have all those who introduce resolutions appear before the resolutions committee, inasmuch as the committee will consider all resolutions that have already been introduced this afternoon. We would like the gentlemen who introduce resolutions to appear for hearing before the committee now.

The Secretary then read Resolution No. 8:

Resolution No. 8, Introduced by Glenn W. Traer, Illinois.

Whereas, The bituminous coal mining industry of the United States is in a condition which is harmful to the public interest and is disastrous to all who are interested in or dependent upon such industry; and

Whereas, This condition very largely has been brought about and has been seriously aggravated by unwise laws which are destructive or repressive in their tenor and effect, even as now construed by the highest court of the land; and

Whereas, The present form and spirit of such laws, as construed by the courts and expounded by the highest public officials, tend to the unnecessary and avoidable waste of an exhaustible natural resource which is indispensable to the life of industry and civilization; and therefore be it

Resolved, That it is the sense of this Congress that the anti-trust statutes, both Federal and state, should be so amended as to (a) state plainly that contracts or combinations for the regulation of industry shall not be condemned as criminal or held invalid between the parties, except to such extent as they may be proven materially harmful to the public interests; and (b) that provision be made for the creation of a National Trade Commission and of similar commissions in the respective states, which shall have sole original jurisdiction for determining prima facie the legality of such contracts or combinations, subject to the right of appeal to the upper courts by the public officials or interested parties.

SECRETARY CALLBREATH: The resolutions committee desires to announce its wish to have all resolutions introduced before the adjournment of the morning session tomorrow, and to state that it will not consider resolutions introduced after noon of tomorrow.

THE PRESIDENT: A resolution was adopted yesterday instructing the Chairman to appoint a committee to draft an amendment to the by-laws so as to admit coal operating organizations and kindred organizations to affiliate with this Congress. I desire to announce that I wish to appoint Mr. E. T. Bent, of Illinois; Mr. E. L. De Lestry, of Minnesota; Mr. D. MacVichie, of Utah; Mr. J. W. Dawson, of West Virginia, as such committee, and I would further suggest that inasmuch as our Secretary is very familiar with our by-laws and articles of incorporation, that he be added to such committee as ex-officio member. If there is no objection to that, it will be so ordered.

(At this point Vice-President S. A. Taylor, of Pittsburgh, took the chair.)

THE CHAIRMAN: We will now take up the unfinished morning program, and the first on the program is Mr. Harry D. Turney, of Columbus, Ohio. Is Mr. Turney in the room? It appears not. The next is Mr. W. R. Woodford, of Pittsburgh. He is not here. Mr. Kuhn was to take his place. I believe he is not here. The next is Mr. James Elliott, of Oklahoma.

MR. J. E. FINNEY, Arkansas: Mr. Chairman, Mr. Elliott was sick and could not be present and asked me to read his paper for him.

Mr. Elliott's paper will be found at page 221 of this report.

THE CHAIRMAN: We will now call upon Mr. Walter Calverley, of Windber, Pa.

MR. CALVERLEY: Mr. President and Gentlemen of the Convention: Until a few moments ago I had no intimation that I would be asked to talk, and I am at a loss to know where to start. As I look upon the question under discussion, it would seem to me more a question to be discussed from the commercial end of the coal mining business, and this is the end of the coal mining business with which I have had very little to do.

You will excuse me if I depart a little from the subject matter under discussion. I have heard some discussions in this hall in which various ideas were advanced upon the prevention of mine accidents, and also some good discussions about providing compensation for workmen in case of accident. Let me say right here that I am fully convinced that some plan must be worked out in the very near future, which will provide compensation to those so unfortunate as to be temporarily or permanently incapacitated from following their usual occupations, so as to provide a weekly or monthly income while the injured party or parties are convalescing. Of course, we all know that we will always have mine accidents just as long as we engage in the exploiting of different coal fields. However, there is one unfortunate thing to be deplored, and that is that the public is given to believe that the men engaged in the coal mining industry, having invested their money in coal lands, are interested only in getting that money out again, and have little regard for human life; these captains of industry have been pronounced the "Romanovs" of the American coal fields in some of our leading journals. I have seen many of them make great sacrifices, yet they are not given any credit for providing any safeguards, or giving any thought whatever to the care and protection of their workmen. I have had thirty years' experience in mines in this country, and ten years' experience in England, and I am proud to be able to state that mining has made some rapid advances along the right line. I feel that the miners labor under better conditions than they ever did before in the history of coal mining. I also feel that while the operators can certainly do more than has been done heretofore, we are forced to the conclusion that we must have the co-operation of the workmen themselves; without this there is a limit as to how much we can accomplish.

One of the real problems in coal mining is the education of the miner. Last year I visited Europe and set foot upon my native soil for the first time after an absence of thirty years, and I went to see what the mining conditions were like as compared with the mining conditions and practices in this country. I could not help being strongly impressed as I looked across some of the working faces down the shaft mines I visited by the way the men did their work as compared with the men I have to handle on this side. I feel that if we had the same class of labor in our mines as the labor I found in the mines of Great Britain and Germany, we would have a different tale to tell than that which we have to tell today. I know in my sphere of experience, I am safe in saying that ninety per cent of the men who work at the face of the coal come from Continental Europe, and they have had little or no experience in mining prior to coming to these shores, and a majority of them are not able to speak or even understand the English language. I am pleased to note, however, that we are making some little change for the better in this direction, and we ought to have them thoroughly understand the rules and regulations, and have them impressed with the importance of strictly observing and being guided by the same. In the mines under my charge I have rules hanging up in a conspicuous place—not only the rules prescribed by the state law—but rules that we have made ourselves with a view to safeguarding our employes. It is almost a daily occurrence that we have to discipline

some of the men for violating these rules. I think, though, that by having our overseers, mine foremen and assistant mine foremen, mingle among the men and use every endeavor to inculcate proper ideas and habits among them, that they must necessarily absorb some of these ideas and habits and thereby reduce the casualty list and accomplish some good. I might relate several instances where accidents have happened that it has been my experience to deliberately pull men out of dangerous places, and insist upon their making themselves safe, and as soon as my back was turned they would deliberately go back into the very same place of danger; these are things of every day occurrence. Most of the accidents that happen in mines are due to the willful neglect of ordinary precautions which should go with coal mining.

The labor question is one of the serious questions that confronts us, and we must give due consideration to the source from which most of the common labor comes, and their previous experience in industrial life. This thing of not employing men in the mines until they are able to speak the English language, and have had experience in coal mining, is not to be treated seriously at this time. Years of experience do not serve to make all men cautious. Another thing, the demand for coal during the past few years, by reason of the phenomenal industrial growth, has been such as to make it absolutely necessary to employ any man that came along, to be able to meet the demands of the market. Now, we would never think of sending a man into the mine to work by himself if he was ignorant of mining. There are perhaps some cases where such has been done, but it is not the rule by any means to send a man ignorant of mining into the mine unless he is accompanied by some one conversant with mining. Some of the discussions upon the subject have been dwelt upon as to the cause of serious accidents by some of the inspectors. I have every regard for the state inspectors, and it has been my experience to see some of them play noble and heroic parts. I have also seen the men upon the property ready to step to the front in times of accidents from explosions or other causes, ready to risk their lives when necessity called for the rescue of unfortunates who might have been in the mine when the catastrophe took place. It is altogether proper to give credit where credit is due, and the public must believe that a large majority of the men in charge of mines, and those owning mines, are just as humane in their feelings as men engaged in any other line of business, and I think that they have shown the whole world on many memorable occasions that they have the courage and also the desire to take their own lives in their hands when it comes to rescue work in connection with mine disasters, and they are also ready at all times to listen to any suggestion with a view to eliminating the dangers that follow the coal mining industry. It is the duty of the employer, of course, to do this, and it is also the duty of the employe to put forth his best effort to protect himself.

THE CHAIRMAN: We will now call upon Mr. Harry N. Taylor, Chicago.

MR. TAYLOR: Gentlemen of the Congress: I suppose you want the poor unfortunates in the coal business to tell you just what is the matter with our business, and I am going to tell you in just as few words as I can what, in my opinion, I think we are suffering from. There are three or four direct causes and probably four or five indirect causes, which, if they could be eliminated would very much stimulate the coal business, not only in Illinois, but in all the adjoining and competitive states. Our first trouble is that our cost of production is fixed by a hard and fast rule, and contract with the labor organizations, which, under the present method, is practically interpreted by them to mean what they want it to mean, regardless of what the language of the contract is. In former days, even working under a contract similar to this contract, when business became dull it was possible by shifting around the work in the mines to keep your cost down in comparison to the slow business, but under the present construction put on this contract by the miners, if you do away with a man you do away with

the job, and any attempt to divide the job up immediately calls down the wrath of the organization upon the poor operator, and his mine is closed down and his cost goes up and his expense continues. So much for that side of the question.

On the other side, we have in Illinois a condition brought about largely by the mine run system, the making of multitudinous sizes of coal. In many parts of the state they make as high as 12 and 13, and even a higher number of sizes of coal. Now, if every operator could get his orders in exactly the same proportion that he makes the sizes of coal, he could not be subjected to a better proposition, but as it is one man gets an order for a thousand tons of egg coal, we may say 3 inch egg, and in order to make that, because of his screening arrangements, he must produce 3,000 tons of coal, 2,000 tons of which he has no market for. If he gets an order for a certain size of nut coal he has to produce 2,000 tons of coal in order to supply his customer with 1,000 tons of the kind he wants, and so on, until we have always a surplus of sizes of coal which that particular operator has no market for, and has to dump, which breaks down the price on the sizes of coal his neighbor happens to have an order for, and that condition of affairs has been the real bottom of our over production in many parts of this state, and the cause of our low prices.

Then, again, the policy of some of our railroads as taken from the view of conserving the coal interests has a very important bearing. Some of our railroads, pushed as they are to operate as cheaply as they can, have forced the coal men to bring their price down to the lowest possible cost, and the price at which the coal is sold to the large consumers is so near that of the pay roll that when a man on that line of road gets a mine opened up that has particularly good conditions he immediately makes his lowest price, working under those best conditions, and shuts up the mine next to him or forces it to run at a loss. A little water, or any trouble in a coal mine makes you shut that mine down or run at a loss. The closing of these mines causes the loss of millions of tons of coal that should be worked for public good. The consequence is that the operator, in his endeavor to run, is forced to put coal out to the small consumer, the domestic trade, at an abnormally high price to try to bring his average up from the abnormally low price that he sells the coal to the large consumer for, whereas if the railroads would pay just a little more it would not be necessary to force the sale of a small portion of coal at an extraordinary high price, and everybody would get a more even price, and all the industries would be much better off than they are under the present unwarranted competitive conditions.

Now, I believe that on the whole, if the railroads and large consumers could see their way clear to pay even 5 cents a ton more than they are now paying, that they would conserve a large amount of coal which is wasted through the causes I have just mentioned, through the inequality of conditions. Every one of the coal carrying roads are lined with abandoned shafts, which could be worked if the price was a little higher. In other words, the operators have to keep so close to the cost of production that the slightest inequality makes them abandon a mine. This is one of the curses of our business.

Now, gentlemen, there is one other question touched on this morning, and that is the change in our present laws which would allow us to get together and adjust prices so we could obtain at least a living profit on the money we have invested. If the government will treat the coal industry as they do the farmers and manufacturers and not only give us experimental stations, but allow meetings so that we could get our industry on a stronger footing without greatly raising the price to the large manufacturer or consumer, giving a lower price to the small consumer, the general public would get the benefit of such permission to get together and handle our business the same as any other business is handled. We then could get a labor contract that could be enforced and the public would be benefited as a whole.

THE CHAIRMAN: I have now called the names of those listed for discussion on the program, and we will now have general discussion under the five minute rule if there are any others who would like to discuss this question.

MR. HARRY N. TAYLOR: I would like to hear from Mr. R. W. Ropiequet of St. Louis.

MR. ROPIEQUET: Sometimes while listening to coal men discuss this situation, I am reminded of a little incident that happened when I was a boy. I was on top of a shed one Sunday afternoon with a cousin of mine, who ripped his coat. He was afraid of being punished, and when he got down on the ground he ran up against a brother of mine, and then said, "See what you did? You ripped my coat." Sometimes I think if we would begin to stop discussing the things on the outside, and look a little bit more on the things on the inside, we would get along just a trifle better. I believe that we use the anti-trust law a good deal like the fellow that ran along and ripped his coat and blamed it on to some one else, after he had ripped it himself. I know that is not along the line of our general discussion, or along the line that we generally like to hear, but I believe it is actually true of the coal situation.

We are our own worst enemies. We talk about the competitive field, and the whole thing that is in that competitive field is that every fellow has got his knife out to try to do up the other fellow. I believe if we could change the laws on the statute books today that with the same human nature that is in the coal business at the present time, it would not take very long before the coal men would be exactly in the same position they are in now. Before we can ask anybody to do anything for us we ought to straighten out our own household. The differences that exist in the competitive fields today are such that men are enemies of each other in this business, and they can't get together on any platform until they are straightened out; and I believe that if this mining congress would accomplish anything of benefit to the coal business, that if, instead of attempting to get together and memorializing congress and the state legislatures, and the President of the United States, this Congress would appoint a "club committee," consisting of interests outside of the coal business, who would get right together with their club and tell the coal men they have got to behave themselves in their own ranks and straighten out their own inequalities and get upon a basis of brotherhood between themselves, that then we might get out and accomplish something on the outside. Until that is done, I do not see how we are going to accomplish anything by any cries of legislation.

There is no question about one matter of unanimity among coal men. It was voiced here the other evening in the meeting, when everybody was always ready to sing "There is a hole in the bottom of the sea." Now, that hole that is in the bottom of the sea hasn't been put there by the anti-trust legislation; it hasn't been put there altogether by the miners; it hasn't been put there by the outside. But it has been kicked into the sea and the boat by the coal men themselves, who are in the boat on the sea, and they are sinking because they don't seem to have enough brain power or enough brotherly spirit, or enough interest in their own business to get together and close up that hole in the bottom of the sea, and in the boat, instead of kicking about the waves on the outside.

Mr. Chairman, if your metal mining industries who talk about getting these coal men on the outside to affiliate with you, if you could get them into the school room of organization with a promise that they would be good enough to let some outside interests come in and fix up the differences that are between them, then they could present a united front; but, even if you would take the anti-trust law off of the statutes of the United States today, if you would let Mr. Wickersham and the other fellows go across the sea where Teddy went; if you would get Mr. Taft not to say a solitary word; and then if you would give the coal men the right of way; the very first thing that would happen, would

be that Indiana would get off by itself to see how it can knife Illinois, and Illinois get off by itself and see how it can knife Indiana, and the southwest would not be in it at all. That is the truth about the situation. Let us face it. (Applause.)

THE CHAIRMAN: "The Economics of the Coal Industry" is the next subject for discussion. This has been divided into three parts, into which it naturally falls. First, coal operators or producers; second, the miners; and third, the consumers. Mr. Carl Scholz will represent the position of the coal operators, and we will now be glad to hear from him.

Mr. Scholz's address will be found at page 241 of this report.

MR. SCHOLZ (Continuing): By way of explanation, I may say that I referred to the securities issued by the syndicate as bonds, these bonds are what we would call stock. The coal companies simply advance a working fund which is utilized by the syndicate to conduct its business until collections are made, and you will be undoubtedly surprised to know what a small amount of money is required to conduct such a large business, because the syndicate is practically able to dictate its own terms and collections are made very promptly and very efficiently. The syndicate has adopted a number of restrictions, such as confining the sale of coal to consumers of a stipulated quantity. No consumer taking less than 6,000 tons of coal per year can deal with the syndicate direct. He is referred to another sales organization existing under the syndicate, and as a whole, these regulations are so well carried out that the consumer himself prefers to buy from the syndicate or its agents rather than from the independent markets which are supplying coal in the same fields. You will be surprised to know that Berlin, with an annual consumption of two and a half million tons of coal, derives one-half of its output of coal from England. Hamburg and similar towns located on the sea and receiving water coal derive all their coal from England. The syndicate cares only to sell to markets which are profitable.

In estimating the conditions of the English mines, I was surprised to learn that their conditions were very much like ours. Operators complained of hard times and their organizations met with little success. Every operator pointed with envy to the syndicates existing on the continent, which are by no means confined to the coal mined in Germany, but the output of France is handled through a syndicate also. As generally known, France has an anti-trust law, and when I called on the chairman of the central committee of France, I asked him about the syndicate. "Why," he said, "we have no syndicate." I at once inquired from the next man I saw in Brussels what he knew about the French syndicate. "Why, sure we have a syndicate, but we call it an information bureau." They collect statistics and, although they call it an information bureau, their real and only purpose for existence is to maintain a staple price and thereby enable their operators to live. There are syndicates in Belgium, France and Germany, with a total tonnage of about 150,000,000 tons per year, which are controlled to the absolute advantage of the operators, their miners, and to the disadvantage of none, as far as I can see.

A number of inquiries were made as to public feeling of the consumers towards the syndicates, and I was much surprised to learn that the public was much better satisfied with conditions now existing compared with the time when the coal was sold in the open market, such as we are now doing. The elimination of suicidal competition, fluctuation of prices to both extremes and the fair distribution of coal to large and small consumers with reasonable differences in prices is valued by the consumers. I thank you.

The Secretary then read Resolutions Nos. 9 and 10:

Resolution No. 9, Introduced by J. E. Finney, Arkansas.

Whereas, The brightest and ablest minds of this country are being exercised to prevent the gross unnecessary waste of our natural resources and to protect life and limb; and

Whereas, The present wasteful and dangerous method of mining coal should receive most careful consideration; and

Whereas, Much relief can be secured in protecting the lives of miners and in the conservation of coal by the more general use of picks and the prohibition of excessive use of powder; therefore be it

Resolved, That we recommend that the practice of shooting-off the solid be discouraged; and

Resolved, That we believe that the best way to improve this dangerous and wasteful method of mining is to advocate the payment for mining coal universally and exclusively on the screen lump basis.

Resolution No. 10, Introduced by Harry N. Taylor, Illinois.

In view of the increasing importance and complexity of the mining and metallurgical industries, the deplorable waste in mining under present methods, and the great need of trained men to aid in improving these conditions and in developing greater safety and efficiency,

Be It Resolved, That the American Mining Congress, now in session at Chicago, urges the Congress of the United States at Washington to provide for aid and co-operation in the maintenance of mining schools in the several states in a manner analagous to that which has been done in behalf of agriculture.

Be It Resolved, That the members of the American Mining Congress and the friends of the mining industry throughout the country are hereby urged to co-operate in securing the proper legislation necessary to carry above purpose into effect.

THE CHAIRMAN: The next speaker on the program is Mr. Thomas L. Lewis, of Bridgeport, Ohio.

SECRETARY CALLBREATH: Mr. Chairman, Mr. Lewis was invited to speak tomorrow, but could not be here at that time and wired that he could come if he was allowed to speak earlier. I wired him that we could place him on the program at an earlier time, but he received my telegram too late to come. I have a telegram from Mr. Lewis expressing his regrets that the telegram was received too late for him to make arrangements to be here.

THE CHAIRMAN: The next speaker is Mr. W. L. Abbott, of Chicago. He is not here.

SECRETARY CALLBREATH: Mr. President, Mr. Abbott was in the hall at noon and asked when he would be called. I told him not before four o'clock, and it is my fault that he is not here.

THE CHAIRMAN: Well, while we are waiting for Mr. Abbott, we will have a paper by Professor A. H. Purdue, of Arkansas, on "The Operation of the Mine-Run Law in Arkansas."

Prof. Purdue's paper will be found on page 227 of this report.

THE CHAIRMAN: While we are waiting for Mr. Abbott to come in, we will hear any discussion that might be desired on this subject. I believe we might revert to the discussion of conditions and remedies under the ten minute rule, as I see Mr. Kuhn in the room. I will call on him now to discuss this subject.

MR. D. W. KUHN, Pennsylvania: Mr. Chairman and Gentlemen: I certainly haven't very much to say; nothing, in fact, but I might tell a story. The chief justice of North Carolina at the beginning of the Civil War couldn't get his officers to enforce a decree, so he rendered an important decision, which he knew very well wouldn't be carried out, and wound up the opinion by saying "The judiciary is exhausted." I want to say, gentlemen, that in the paper I prepared, which I understand was read here last night very much better than I could have read it, that I exhausted myself on that, and for me to say anything further would simply be repeating what was very ably read last night. The only thing I could say, and that is an idea that is uppermost in my mind, is that the coal mining industry should do less talking and have fewer

resolutions and fewer discussions, and for a short time, at least, get down to see if they could do something to benefit the industry. The only way that appears to me is that in some form of concentration, it does not necessarily follow that the entire industry should be put into one great corporation, or any great combination, but there will have to be some form of concentration. In my opinion the way to do that is for each coal mining district to bring themselves together where physical conditions will warrant, bring the coal mining operators together for the purposes of operating the mines and for the purposes of selling the product and conducting the coal mining industry with respect to markets. I have a great deal to say in a way, but I don't feel that I could do justice to it in a brief speech of this kind. I would urge and urge strongly that for once in our lives we get down to some basis by which we will act as well as talk. Roscoe Conklin said he believed in the arduous greatness of things done, not said. You believe that. I believe that. Let us act on it. (Applause.)

THE CHAIRMAN. Mr. Abbott has come into the room and he will discuss the economics of the coal industry from the coal consumers' standpoint.

Mr. Abbott's address will be found at page 224 of this report.

THE CHAIRMAN: One of the words used by Mr. Abbott brings to my mind that the Coal Baron started with the song of "Old King Cole," which has been changed in the changes of time until now Coal Baron is spelled B-a-r-r-e-n, and the song changed from "Old King Cole" to "Over the Hills to the Poorhouse." (Laughter.)

The subject is open for discussion limited to five minutes each. If there is no discussion I will ask Mr. J. E. Finney, of Arkansas, to read the paper that he was to read yesterday.

MR. FINNEY: It is not my purpose to read all of this paper, as Professor Purdue read a paper in your hearing on this same question. I will read three or four pages of this paper, and the balance of it, which is confined largely to a reproduction of the report of the Arkansas Geological Survey, under the direction of Professor Purdue, will be printed, I take it, in the proceedings.

Mr. Finney's paper will be found at page 233 of this report.

The Secretary then read:

Resolution No. 11, Introduced by W. N. Searcy, Colorado.

Resolved, That, Whereas, The metal mining industry of our nation, including the mining and reduction to pure metal of the iron, copper, lead, zinc, gold, silver, tungsten and other metal bearing ores, is of vital importance to the national welfare;

And, Whereas, The demand for and production of such metals are constantly and rapidly increasing, and the use and application of the industrial metals are continually extending and broadening—all to such extent that we are more than doubling the annual extraction of metal in each twenty years of national existence;

And, Whereas, The continued and unhampered production of these metals will not only be necessary to the prosperity of our country's industries, but will be indispensable to our continued advance in civilization; our nation having already reached the stage of progress wherein the equipment of armies, the building of navies, the maintenance of inland transportation, the construction of cities and the founding of the industries themselves are all absolutely dependent upon the metal supply;

And, Whereas, In the industry of metal production, and especially in the mining and reduction of complex ores in our western states, a great percentage of loss of the valuable metal is suffered, which loss is apparently unavoidable under existing methods; and many valuable metallic and mineral by-products are also dissipated in the course of ore treatment because of the inadequacy of existing processes to save such by-products at a profit;

And, Whereas, This loss in such metal production amounts, at the least, to from fifty to one hundred million dollars worth of metal per year, out of the ores extracted in the western states and territories alone;

And, Whereas, This loss of metal is in general irretrievable, resulting in a substantial and permanent lessening of the available metal supply of our country;

And, Whereas, The department of agriculture of the United States has fully proven the efficiency of local or field experiment station work in solving the many problems of the farming industry, and there is every reason to believe that similar good results may be achieved by the same system of investigating and solving the problems of the mining industry;

Now, Therefore, Be It Resolved, By the American Mining Congress, That the President and Congress of the United States be, and they hereby are, earnestly requested and petitioned to recommend and enact such appropriation measure or other legislation as may be necessary to enable and authorize the National Bureau of Mines and Mining to make thorough investigation of the condition and problems of the metal mining industry and to institute, maintain and conduct local or field experiment work and research, and such other metallurgical and experimental work as that Bureau may deem requisite—all to the end of improving the methods and condition of the metal mining industry, and saving from waste and conserving for use the metal resources of our country, and be it further

Resolved, That a copy of this resolution be furnished and presented to the President, the Director of the Bureau of Mines and Mining, and each United States senator and representative in Congress.

Whereupon an adjournment was taken until 8 o'clock p. m.

THURSDAY, OCTOBER 25, 1911.

Evening Session.

THE PRESIDENT: Gentlemen of the Convention: The gentleman who is to address you this evening is one who needs no introduction to you, as I believe you all know him, and I know you have been waiting for him to come here to address you again this year, as he has at every mining congress for a great many years. He is our most esteemed fellow citizen and co-laborer for this cause, the director of the Bureau of Mines, Dr. Joseph A. Holmes. (Applause.)

Dr. Holmes' address, illustrated, will be published later as a supplement to this report.

THE PRESIDENT: While it may seem a little out of place to call a man back to the platform after giving us such an exceedingly interesting lecture, still we from the West, whose sympathies have been strongly aroused in behalf of bituminous coal miners, particularly in the middle west, and let it be understood we want to aid you in every possible way, would like, if possible, to have Dr. Holmes say a word of cheer and encouragement as to what we may expect from the bureau of mines in the way of assistance for the precious metal mining industries. I realize that the work was started to avoid the great loss of life, and that is the first principle to be considered in mining, and while the appropriations made by our Congress to take up this work at this time are inadequate, we fully believe with the assistance of you easterners who are principally interested in coal and iron mining that the bureau of mines will get an appropriation by your support that will be sufficient to give us the required assistance and help. I should like very much if Dr. Holmes would give us a few words in regard to what his ideas are with reference to the assistance that the precious metal miners of the west may expect.

DR. HOLMES: Mr. President, Ladies and Gentlemen: I appreciate this invitation from the presiding officer, and especially because of the friendly spirit in which it is extended. It should not have been necessary, however; for I should have included in my original address the statements for which he is now asking.

I am quite aware of the fact that while the creation of the Bureau of Mines was rendered much easier by the series of unfortunate coal mine disasters immediately preceding it, as a matter of fact, the existence of the bureau is due largely to the persistent efforts in its behalf during the past twenty years of the American Mining Congress; backed by the western metal-miners. I am also aware of the fact that there is a reasonable basis for the complaints now frequently heard in the western states and territories to the effect that the bureau is doing practically nothing to aid these metal mining branches of the industry that were so largely responsible for its creation.

But President Dern has indicated, and I think the members of the Mining Congress generally understand, that the conditions attending the immediate creation of the new bureau are responsible for this situation. At that time the coal mine disasters and the saving of life were properly uppermost in the public mind, and in the thought of Congress in making the appropriations for the bureau's first work. Now that that work is well under way, I believe Congress will give friendly and favorable consideration to the needs of the metal mining industries, if these needs are properly presented before it.

The country is coming to understand more clearly every year how essential to our national welfare are the two great foundation industries, agriculture and mining. Agriculture has for years been receiving proper recognition and aid from the Federal government—to the extent of from \$10,000,000 to more than \$15,000,000 a year—for the reason that its representatives demonstrated the fact that there was much work in behalf of farming that the Federal government could do to better advantage and with less of the costly duplication that would characterize this work if undertaken by each of the several states or by private individuals. And if Congress can be shown that there are extensive inquiries and scientific investigations needed in behalf of the mining industry, that are national in character and can be conducted to better advantage by the Federal government than by each of the several states or private individuals it is reasonably certain that Congress will accord to mining a generous treatment similar to what it has done for agriculture.

Indeed, the appeal for national recognition and aid in behalf of mining presents several advantages over the appeal in behalf of agriculture. The products of the mine are no less than those of the farm essential to our national welfare; but while in the annual crops of the farm we have the perpetual renewal of these supplies, of the products of our mines we have but the one supply, which supply has required the ages of the past for its creation, and it must meet the needs of the nation for all time to come. Mining is therefore an industry in which in an important and special sense the nation must safeguard its own future, by seeing to it that these resources so essential to its permanent welfare are used wisely and without unnecessary waste.

The needs, the purposes and the plans of the individual or the corporation are local and temporary. Too often even the state in its commendable efforts toward present developments loses sight of the future needs and future rights of its citizens. It is therefore the right and duty of the nation in every way consistent with our form of government, to see to it that in the use of resources essential to national welfare these resources are developed and used with the highest possible efficiency or without unnecessary waste.

Again while agriculture is the safest, mining is the most hazardous of all our great industries. And while mining is often spoken of as an industry of organized companies in contrast with agriculture as an industry of individuals, as a matter of fact mining is also in a most

important respect equally an industry of individuals; and it is especially an industry in which a single individual, by accident or by thoughtless mistake, may cause the destruction of scores or even hundreds of his fellow workers underground.

Both the loss of life and the waste of resources in the metal mining and other mining industries of the western states are far in excess of what they are ordinarily supposed to be or what they ought to be. The need of such general inquiries and investigations as will aid in developing both safer and less wasteful mining and metallurgical operations is being fully recognized; and I believe that any request for the extension of the work of the Bureau of Mines to cover inquiries and researches to meet these needs in the west will meet with general approval and will receive favorable action by Congress. Meanwhile, I am sure the President and members of the Mining Congress fully understand, the Bureau of Mines must keep well within the limits fixed by the letter and spirit of the existing legislation.

THE PRESIDENT: We are to have the pleasure this evening of listening to an address or a lecture by a most estimable gentleman, whom up to only recently I always considered in reality a metal man, but I see that he is on the program for an address on coal mining. No doubt he could perhaps tell us as much about copper as he could about coal, but this being a "coal day" I presume he will confine his remarks entirely to this subject. I have the pleasure of introducing Dr. James Douglas, of New York, one of the old timers. (Applause.)

Dr. Douglas' paper will be found at page 214 of this report.

THE PRESIDENT: Gentlemen, I am sure you have all enjoyed the interesting discussion and lecture of Dr. Douglas. His company certainly seems to have one of the most complete plants among the mines in the southwest and perhaps in the central west. I invite general discussion of this subject, which has been introduced by the doctor. Does any one here wish to make any remarks on this subject?

DR. HOLMES: With the risk of saying too much in one evening, I rise to speak for the second time. There are two or three points brought out by Dr. Douglas in his admirable paper that I feel we ought not to let pass unnoticed. I have always had the feeling that no one in this country has done as much for metal mining and the metallurgical industry as has Dr. Douglas. (Applause.) He has appeared before the Congress in an entirely new role, and I think we are greatly indebted to him for taking us into his confidence and giving us the inside business details with reference to this great experiment which he has been trying in another branch of the industry.

As one travels through the European coal mining districts you are impressed with the stability of the coal industry. You see magnificent steel tipples and coke ovens of the most modern types, and washeries built on the plans which he has described to you as having been followed by his own company, but you rarely see that in this country, which illustrates the instability of the coal mining industry in the larger part of the United States. Not that we have any less enterprise, or that we are any less ambitious to have big permanent stable plants than they are in other countries, but the price which they get a ton for coal averages twice what we get in this country; they normally get a price twice that of ours, and they know they are going to get that same high price next year and the year afterwards, because of the economic conditions under which they live.

I remember hearing Mr. O'Brien say that the things which you can reach in the long run may be best for you, but there is no special advantage for the shortwinded fellow. Dr. Douglas' company has been most fortunate under his management in being able to do things in the manner which he has prescribed. Like a man who sometimes draws a good salary and operates a farm, he can afford to manage that farm in a way the other fellow who did not have the salary could not, and what makes his attitude in this matter particularly commendable is the fact that in order to demonstrate certain general facts and principles

for the benefit of the mining industry he has been willing to make the outlay which his company has made. There never has been a proposition with reference to safety that we have suggested to Dr. Douglas that he has, not been ready to put into practice. Usually when we came to look into it it was found he had it in practice before we suggested it. There never has been a suggestion with regard to saving his coal or operating it on a less wasteful basis that he was not prompt to take and put into practice.

It has been with him a great experiment, and it is an important contribution to the coal mining industry in this country, and we are most fortunate that he has been willing to make it. Two things which he has developed there seem to me to be especially commendatory, and I am glad he has mentioned them, one is the safeguarding of the lives and the other is the effort to prevent the wasting of materials. When we talk to the American people about the coal industry they begin to immediately think about the rich barons, and we never will reach them except on those two bases. People of this country are becoming more and more interested in the prevention of the unnecessary loss of life, and when we go to them with regard to this great proposition of the coal mining industry, we have got to go on one of those bases. That is the reason the more we can talk and impress the people of this country with the loss of life and the waste of resources, the sooner we will get them to reason and see that something must be done and make them willing to let conditions be changed, to let the coal people combine and get together in order that they under the circumstances may safeguard lives and prevent unnecessary waste of resources more effectually.

I certainly, as one member of the Congress, feel very grateful to Dr. Douglas that he has been willing during the past six years to undertake to carry through the splendid experiments the results of which he has given the organization the benefit of here tonight. (Applause.)

MR. WILLIAM GRIFFITH, Pennsylvania: Dr. Douglas' closing remarks seem to me lead up to what we call in Pennsylvania the perpetual lease, the leasing of the coal in the ground. We regard that as one of the very best methods of conserving the coal, conserving the interests of the owners, and conserving the interests of the operators and providing a reliable and long tenure lease upon which the financier can afford to put money into a proposition. The short tenure leases are a delusion and a snare. The northern anthracite coal field of Pennsylvania contains about one-third of the total area, but it ships and has shipped for years a great deal more than one-half of the total output of the anthracite fields. One of the very great reasons why the northern anthracite field is in advance of the others is that in the northern field they started with perpetual leases, and in the other field they started with short term leases, about 15 years, with the privilege of continuation at the end of that time. The operators took no stock in the promise, like the one-hoss shay, but built to last 15 years to the day, and no longer. The result was we had a whole lot of small operators, poor equipment, and in the northern fields where we had leases that were perpetual with an annual minimum rental the operators built large and substantial plants, intended to last as long as it was possible for them to last, intending to bring out just as much coal in one plant as it was possible to produce. The result is that the production in the northern field quickly ran away with the combined production of our other fields in the anthracite field.

THE PRESIDENT: Will you please permit me to ask a question? Was the lease on the anthracite region a lease from the state or from private individuals?

MR. GRIFFITH: From whom ever owned it, from the land-owners, and I see no reason why the government or the state could not adopt a similar arrangement for the lands owned by the government or the state. The courts have time and time again decided

that a perpetual lease, or a lease for all the coal in the ground, is a sale of the coal on the installment plan, and I can see no reason why the government as a land owner cannot put that method in force. That sort of an arrangement will, as Dr. Douglas has suggested, lead to a conserving of the coal and the introduction of large and staple plants, instead of small, wasteful, two-cent operations that we often times have in coal fields.

A DELEGATE: I would like to ask Dr. Douglas in the operation of the underflue oven in comparison with the Beehive oven, what is the difference in repairs? You get a larger output from the underflue oven than you do from the Beehive, but how do the repairs compare?

DR. DOUGLAS: Well, the first ovens we put up required considerable alterations. The bricks were not the best suited for the purpose, but we repaired some of the ovens and they showed very little wear and tear. The very best brick should be used under the flues. The reason for couching the coal in the ovens, as we do, is so that the water can't get through the floors to the silica brick and cause them to so degenerate that they will need repairs. Therefore, a thoroughly good firebrick, in spite of the very high volatile of our Trinidad coal, is a great deal better than the silica brick, and the ovens as we have reconstructed them will require very little repair. They seem to stand the heat very well, although the heat in them is considerably higher than the heat under the flue ovens.

MR. CARL SCHOLZ, Illinois: I want to confine my remarks to one point and that is the fixed charge of 15 cents a ton, which should be added to the actual labor and material cost of every ton of coal produced. If we can impress the coal producers of this Congress with that figure I am quite sure the coal mining industry will be put on a good business basis. I think we are indebted to Dr. Douglas for his own observations and for placing them before us. (Applause.)

Whereupon an adjournment was taken until 10 o'clock a. m., October 27.

FRIDAY, OCTOBER 27, 1911.

Morning Session.

The meeting was called to order by the President.

THE PRESIDENT: The first thing in order will be the introduction of resolutions.

MR. W. P. DANIELS, Colorado: I want to introduce a resolution that I hope may be considered by the committee as a substitute for everything that has been heretofore introduced on the subject.

The Secretary then read Resolutions Nos. 12, 13, 14 and 15:

Resolution No. 12, Introduced by W. P. Daniels, Colorado.

Whereas, In the opinion of the American Mining Congress, the effort to procure appropriations for ore testing plants at particular points is unwise and will result in a conflict of interests that will defeat the object, and believing that the use of any appropriation for the benefit of the metal mining industry should be left to the discretion of the Bureau of Mines; and,

Whereas, the metal mining industry has not received the consideration and assistance that it has a right to expect, and the appropriation which it is understood is to be recommended by the Secretary of the Interior, it is entirely inadequate; therefore, be it

Resolved, That the Congress disapprove the appropriations for ore testing plants that are to be expended at specified places, and earnestly urges the appropriation of \$1,000,000 for the use and benefit of the metal mining industry.

Resolution No. 13, Introduced by Falcon Joslin, Fairbanks, Alaska.

Whereas, The sudden suspension of the coal land law of Alaska, though undoubtedly illegal, and recognized as such by the departments and by Congress itself, has remained effective to this date, and

Whereas, It is now contended that the law shall remain suspended forever, and that the whole system of selling the coal lands shall be abandoned and a leasing system substituted; and

Whereas, Of the more than two hundred entrymen, who have surveyed their claims and paid the purchase price, only thirty-three have been able to get any decision favorable or unfavorable from the land office. The decision in these cases was adverse to the claimants, and whether the claimants will forfeit the amount they have paid to the Government and lose the great sums they have spent in exploring and development work, and the years of time they have given, remains to be seen; and

Whereas, The other claimants are in the deplorable condition of having spent years of time and hundreds of thousands of dollars in the exploration, development and purchase of the lands from the Government, and can neither get the land nor get back their money. Neither have they under the existing law any access to the courts for a judicial determination of their rights; therefore, be it

Resolved: First. That the existing law of the land in reference to the sale of coal lands in Alaska should be enforced and administered until Congress, the law-making body of the Nation, sees fit to repeal or amend it.

Second. That the assumption of authority by the executive department to suspend and abrogate the coal land law of Alaska in order to force the passage of a different law by Congress, or for any other purpose, is not justifiable.

Third. That if the existing law is to be abrogated or repealed, it should be done by Congress that made it, and scrupulous care should be taken that rights acquired under the law be respected, and the faith of the Nation kept with those who have spent their time and money in exploring and developing the coal lands.

That the claimants whose money the Government has taken, should have their entries promptly passed upon, and where found regular, their patents issued without further delay.

That the law should be construed liberally in their favor, with the object of carrying out its true spirit and intent, which was undoubtedly to bring about the sale of the coal lands and to encourage the opening and development of the industry of coal mining.

Resolved, That it is the sense of the American Mining Congress that some form of local self-government be at once provided for Alaska.

Resolution No. 14, Introduced by W. P. Daniels, Colorado.

Whereas, The American Mining Congress has placed itself upon record as opposed to fraud and deception in the promotion and sale of stocks in mining and other corporations, and

Whereas, Prevention of fraud is much preferable to punishment after has been and is a practical failure by reason of the difficulty of showing fraudulent intent, and

Whereas, The prevention of deception and fraud by punitive legislation, it has been committed, and it is the opinion of this Congress that proper publicity would deprive the fake promoter of the opportunity for fraud and deception that exist under present laws and would save to the investor the large amount of which he is continually being defrauded by the concealment of facts of which he should be informed; therefore, be it

Resolved, By this fourteenth annual session of the American Mining Congress, that we endorse and approve the bill herewith and urge its adoption, with such changes as may make it applicable in the different States.

A Bill For An Act in Relation to Corporations.

Be it enacted by the General Assembly of the State of

Section 1. Whenever full paid stock is issued for property by any corporation, doing business in this State, it shall be the duty of the president and secretary of any such corporation, within ten days from date of the issuance of such full paid stock, to file, or cause to be filed, in the office of the Secretary of State, a description of the property transferred to the corporation for such stock, with the name or names of the person or persons, or of the corporation from whom purchased, the number of shares of stock issued to each of such persons if the property be transferred from individuals, and if known to such president or secretary, the actual amount paid by the person or persons or the corporation so transferring said property to the corporation purchasing the same for such full paid stock, and if not known, such statement shall so state, and if any portion of the stock so issued in payment for property is donated to the corporation issuing it, such statement shall show the amount of stock so donated. Such statement shall be verified by the president and secretary of the corporation, and with a certificate of its filing in the office of the Secretary of State shall be published in any general prospectus issued by such corporation.

Section 2. Every stock certificate issued by any corporation, which is not for stock sold by the corporation all the proceeds of which go into the corporate treasury, shall have printed or stamped across the face of such certificate, with ink, the color of which is conspicuously different from that with which the body of such certificate is printed, and in letters not smaller than those printed from 12 point type, the words, "This certificate is a transfer of ownership of the stock represented by it and not a sale by the company."

Section 3. Before any foreign corporation shall be authorized to do business in this State, in addition to the requirements of any existing law, it shall make and file with the Secretary of State, a certificate signed and verified by its president and secretary, which shall show what proportion of its capital stock has been paid for in money and what proportion has been paid for in real or personal property, labor or thing of value other than money, the price per share at which such stock issued in payment for property was sold, with a description of such property with the name or names of the person or persons, or corporation, from whom purchased; the number of shares issued to each of such persons if the property be purchased from individuals, and if known to such president or secretary, the actual amount by such person or persons or corporation, from whom such property was purchased, and if not known, the certificate shall so state. If any portion of such stock issued in payment for property is donated, to the corporation issuing it, such certificate shall show the amount so donated. Such certificate with a certificate of its filing in the office of the Secretary of State shall be published in any general prospectus issued by such corporation. Any foreign corporation failing to comply with all of the provisions of this act, after being authorized to do business in this State shall forfeit such authority in addition to the penalties hereinafter provided.

Section 4. The Secretary of State shall be entitled to a fee of one dollar for filing any statement or certificate required by this act.

Section 5. Any officer of any corporation failing to comply with the provisions of this act, or wilfully certifying any false statement in any statement or certificate required by this act, shall be deemed guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine of not less than one hundred, nor more than one thousand dollars, or by imprisonment in the county jail for not less than thirty days nor more than one year, or by both such fine and imprisonment.

Section 6. Where the capital stock of any corporation doing business in the State of is sold by any officer, director or other agent or promoter of any such corporation to any purchaser thereof for a cash consideration without a compliance with the provisions of this act in reference thereto, an action may be maintained in any court having jurisdiction in this State for the purchase price of such stock, and proof of the failure to comply with this act on the part of any officer, director or other promoter of any such corporation, shall be prima facie evidence of fraud in the sale of such stock.

Section 7. Any law or part of law in conflict herewith is hereby repealed.

Resolution No. 15, Introduced by W. P. Daniels, Colorado.

Whereas, The American Mining Congress has by amendments to its laws, provided for the establishment of branches of the Congress wherever fifty or more members desire the establishment of such a branch, looking to the ultimate establishment of state and local organizations to be governed by a national body consisting of representatives of such local and state organizations, and

Whereas, The present laws of the Congress did not originally contemplate a delegate or representative organization with subordinate bodies, self-governing within the provisions of the laws of the Congress, and the amendments providing for the establishment of branches is not in harmony with the original plan or the present laws; therefore, be it

Resolved, That a committee of three members of the Congress be appointed by the President whose duty it shall be to prepare and report to the next annual session of the Congress, such amendments or such a revision of the present laws as will provide for a representative national governing body with state and local bodies, subordinate to and under the jurisdiction of the National body, and it is the sense of the members of this session of the Congress that all life members of the Congress who are or may become life members under its existing laws, should be made life members of the National Congress with all of the rights and privileges of the representative or delegate members that may be provided for in such report.

MR. J. M. DINWIDDIE, Iowa: I have been appointed several times as a delegate, but have never been able to come until this time. We are going to act on resolutions, and you have no Congress in session or members in session to act on these resolutions. I would like to know what the result is when you act on them, now that the members' meeting is adjourned.

SECRETARY CALLBREATH: The official call states that the resolutions adopted by the Congress become the platform of working operations during the coming year. That has always been the rule. Where resolutions are adopted more extensive than it is possible to put into effect with the funds available for that purpose, it has been the rule to endeavor to put those into effect which have seemed to be the most important.

THE PRESIDENT: The next will be a paper on "The Future of Alaskan Coal," by Dr. A. H. Brooks, chief of the Alaskan division, United States Geological Survey, Washington, D. C.

Dr. Brooks' paper will be found at page 291 of this report.

THE PRESIDENT: The next number on the program is "The Development of Alaska," by Mr. George Murphy, Seattle, Wash. Mr. Murphy has been called away by telegraph, and consequently that part of the program will have to be omitted.

The next will be an address by Duncan M. Stewart, Seward, Alaska, on "Transportation in Alaska."

MR. STEWART: Mr. Chairman and Gentlemen: My first duty is to express to you my appreciation of the high honor that has been conferred on me by the invitation to address you today, and if only

the acceptance of the invitation did not involve the very serious responsibility and heartrending feeling of inability to rise to the importance of the occasion and to deal adequately with the subject entrusted to me, I can assure you that I could also express to you my pleasure and my happiness at this moment. I believe, gentlemen, that any man who has the temerity to address a public gathering charges himself with the very serious responsibility of saying something, of delivering some kind of a message. We have heard a great deal of clap-trap and buncombe by people who knew little or nothing about the subject from the standpoint of a resident. It has not helped, and when I feel that it devolves upon me to discuss a subject of vital importance to a country twelve times the size of the state of New York and whose area is more than the combined area of Oregon, Washington, California, Arizona and Nevada, you will appreciate that my responsibility is in no way diminished. Realizing this then, gentlemen, as one privileged to address you as a resident of Alaska, as one deeply interested in the development of natural resources, yet holding no brief from corporation, court, or any one else, in that country or elsewhere, I beg to assure you that these words of mine this morning are based absolutely on facts, and I shall deal only with facts. I will lay contentious matters aside and place these matters of actual fact without the burden of statistical figures before you, so that you will get some kind of idea of what we have in that country, and what we have to contend with, and shall leave it to you to draw your own conclusion, and see what we are going to do about it. With that understanding I bespeak for the subject your earnest consideration and for myself your kind indulgence.

Mr. Stewart's paper will be found at page 320 of this report.

(At this point Dr. E. R. Buckley took the chair.)

MR. GLENN W. TRAER, Illinois: As the chairman of a special meeting of the coal operators, on attendance at the convention, I have been requested to report that it was unanimously voted by the coal operators present to recommend to their various associations and bodies of coal operators at home that they take membership in the American Mining Congress in conformity with the resolution which was passed this morning, I believe, and on the basis there stated that they take substantial membership. It will also be recommended by these representatives to their organizations that each organization appoint a representative on an auxiliary committee to co-operate with the directors of the American Mining Congress in the work which it is intended to carry on, and provision was made for a definite and specific report to be made to the various coal operators' organizations.

CHAIRMAN BUCKLEY: Gentlemen, I am very sure that the men who have been actively associated with this organization for ten or twelve years, or perhaps longer, appreciate very much the action taken on the part of the coal operators, and I think we can assure them that the Mining Congress will not only be of benefit to them, but that they can be of very great benefit to the Mining Congress.

The next address on the program will be by Mr. George E. Baldwin, of Valdez, Alaska, on the subject of "The Alaskan Question."

MR. BALDWIN: Mr. Chairman and Ladies and Gentlemen: I was put down to speak on the "Alaskan Question," but wish to say that broadly speaking there is no "Alaskan Question" any more than there was an "Ohio Question" a hundred years ago, or a "Wyoming Question" fifty years ago. I shall specifically speak upon the needs of Alaska.

Mr. Baldwin's paper will be found at page 299 of this report.

MR. BALDWIN, continuing: What Alaska asks is the same treatment that has been accorded the pioneers ever since the first settlers crossed the Alleghenys and went upon the public lands. If your system has been a failure so far, we don't see any evidence of it, because when we come down to these cities from the wilds of Alaska, they look pretty good to us. (Applause.)

CHAIRMAN BUCKLEY: Gentlemen, the Alaskan question has perhaps received more publicity the last few years than any other sub-

ject concerning the American people. As this matter is being exhaustively discussed by papers this morning, there may be others here who would like to speak on the subject, and opportunity is now afforded them.

MR. WILLIAM GRIFFITH, Pennsylvania: I feel, gentlemen, like saying a word to the Mining Congress, from the view point of practical mining engineering of today, with regard to the effects of geological structure upon the coal of Alaska. You know the geological survey of the United States reports about the conditions with reference to the purely geological question, and they have but little to do with the economics of these matters. Now, any mining engineer who is interested in the practical mining of coal today, who goes into those Alaskan fields, will immediately be impressed with the very great and very unfavorable effects of the geological structure upon the economical condition affecting the coal beds, and the result of all this is that the quantities and values of the Alaska coals, especially the high grade coals, have been enormously and outrageously exaggerated through the public press all over the country, and we have been getting erroneous ideas in regard to these things. After returning from Alaska after making a couple of examinations of the Matenuska fields, I was particularly impressed with the exaggeration that was going on through the country, and in my efforts to try to stem this tide I prepared a paper some time ago for publication, and although I exerted my very best efforts I absolutely failed to have this matter published. Of course, the technical journals are willing to take articles of that kind, but the newspapers don't want any articles, apparently, that consist simply of unadorned facts. It is almost an impossibility to get anything of that kind before the American people. Now in order to bring this matter properly and fully before you perhaps I had better read that paper to you. The idea of this little talk is to just set before you the true conditions from the view point of the miner today, with reference to the mining practice of today, not the mining practice of a thousand years from today, when the improvements in the Arts and Sciences may enable us to mine and use a whole lot more coal than we now do but the practical mining basis that Dr. Douglas talked to us last night.

Mr. Griffith's paper will be found at page 329 of this report.

MR. GRIFFITH (continuing): Now, it must be evident to anybody who has considered this subject that if it shall be concluded wise to lease the coal beds of Alaska, that the royalty to be received by the Nation from such leases will be the very smallest benefit the Nation will receive. The great benefit to this Nation and to its people will come from the development of that coal for defensive purposes of the Nation in the navy, for industrial and other uses, and for the development of the territory, the development of Alaska, and that small portion of the royalty that comes to the Nation should be spent for the welfare of Alaska, for the schools and other useful institutions in that locality. I thank you very much, gentlemen. (Applause.)

(At this point President John Dern assumed the chair.)

THE PRESIDENT: Gentlemen, before proceeding further with our program, your Chairman desires to express his pleasure to the members and delegates for the good attendance at all of our sessions. We have had a splendid attendance, which is gratifying to those who address you. The only fault I have to find is that you are not prompt in the beginning; you come in a little bit too late. This afternoon we will be favored with an address by the Governor from my state (Governor William Spry, of Utah), whom we esteem very highly, and who is the only western governor who has given up his time to come all the way from Utah to attend the American Mining Congress. (Applause.) And I bespeak for him as a personal favor to me, and of course by doing that you will confer it upon him, that you will be here promptly at 2 o'clock and give him a good audience.

MR. PHILLIP N. MOORE, Missouri: I would like before this Alaska leasing question be passed, to ask Mr. Griffith whether he shares the opinions of the preceding speaker as to the absolute impossibility or impracticability of a leasing system for the Alaska coal.

MR. GRIFFITH: I think time leases are a bad thing, and probably that is what the preceding speaker referred to. We have found in the anthracite coal fields that a perpetual lease, that is, for all the coal in the ground, is one of the very best arrangements that the operator can use. It not only tends to conserve the coal, but enables the operator to use his money for equipment instead of spending so much for the land, and if perpetual leases for Alaskan coal were arranged for under the Government in such a manner that they would not be hampered by Government red tape, I believe that it would add very much to the rapidity of the development of Alaska. Such lessees should have two or three years before the minimum begins in order that the lessees may investigate the land and find coal, in the first place; and in the second place that they may have an opportunity to build their operations and equip them in good style, operations and equipment intended to last if possible until coal is exhausted. If you have perpetual leases, which are really a sale of the coal on the installment plan, to be paid for as it is mined (that is what a perpetual lease is), that sort of lease would be all right, and it is right in line with what Dr. Douglas recommended last night—the leasing of land with royalty from time to time during its tenancy.

THE PRESIDENT: Mr. Falcon Joslin, of Fairbanks, Alaska, will now address the Convention on "The Alaskan Coal Situation."

Mr. Joslin's paper will be found at page 351 of this report.

Whereupon an adjournment was taken until 2 o'clock p. m.

FRIDAY, OCTOBER 27, 1911.

Afternoon Session.

The meeting was called to order by the President.

THE PRESIDENT: The first number on the program will be a paper by Mr. Jesse Knight, of Utah, on "Conservation and the People." Mr. Knight has requested Dr. Kingsbury, President of the University of Utah, to read the paper for him.

Mr. Knight's paper will be found at page 159 of this report.

THE PRESIDENT: Inasmuch as Mr. Knight requested Professor Kingsbury to read his paper for him, he might be willing to elucidate a little further on the same subject. If Mr. Knight cares to be heard he may have the privilege now.

MR. KNIGHT: I am not used to public speaking. I am more used to doing things with muscles than with language, and I will not detain the audience but a few minutes. I want to say a few words on the consistency of preserving power sites. We are so situated in Utah that in any mine in the high mountains small streams of great fall can be utilized and it can hurt no one to build a little power plant where coal is almost impossible of access. You can easily run a wire and help out the mining industry more with that than any one thing I know of, and along the mountains a stream can be used two or three times and then drop into its natural channel before it reaches any possible chance for irrigation. Then again in building these power plants we have a low water season, and we have to make reservoirs and instead of wasting the water it is all preserved and consequently from every standpoint it is a saving and a help to the farmers. I have never heard but one objection or one reason, and that was because of the use of this water. We told them that considerable more water was saved by putting it through the pipe than to let it lose a large portion of its volume among the rocks and gravel and that we would bring it down to the headgate in time for them to use it. He said, "What good is it when you take the electricity out of it" (laughter). That is the

only reason I have ever heard in God's world for preserving it. That may be a good reason, I am not mechanical enough to say, but I am suggesting that it is not a good reason and I will endeavor to give you my reason. From my point of view there can only be one reason for holding the power sites off the market, or leasing them. For that matter some of them in our state have been taken off the market. I can see no reason in the wide world, only to hold them until the big monopolies or the big combines that already use electricity, get ready to use them and then there is not any doubt in my mind but what they would do just like the larger interests, for when they want something they usually can have it for nothing. That is the way I view things, at any rate. If any one here in the East can give me any reason for holding the power sites off the market, why I am here to learn. I haven't been able to think of any reason. Under the statutes of our state they can't hold the power sites unless they build on them, and if they built on them no matter how many big concerns built, wouldn't it be the means, if they built more than they needed, wouldn't it be the means of selling power cheaper? If they were to build on all the power sites in the United States, I don't care how big the concerns are, it would have that effect, but I take it there is no danger of building on all of them, only so far as they can sell power and keep the price up to prohibitory use from the common people. My object in good power plants is also for self protection. The electric power that was being sold where I was operating, in a mining camp where coal was extremely high, I undertook individually to do what I have already outlined in the paper, and I don't wish to take up much more time. We have so many better speakers, but I don't believe you have any harder workers or better thinkers than I am. (Applause.) I am a pioneer. I have been in Utah 64 years, and I have always been a hard worker. I don't propose to make a long talk, but I want to compliment the papers that have been read and the discussion that has been had. It has been very instructive to me, and I see by the conditions here that the country is over developed until the people want some way to be relieved from an oversurplus and bring the prices down, and I want to help the Eastern people as well as the Western people in anything that is right and just. I thank you. (Applause.)

THE PRESIDENT: As I stated this morning just before adjournment, we will have the pleasure of listening to one of our Western Governors, the Governor from my own state, who has taken the time to come the long distance from Utah to Chicago to address this convention. The Governor is a man of the people, one of the most popular of the West, one who understands the needs of the people and understands the Western country, and his subject this afternoon on which he will speak is "The Public Lands Question of the West." I have the pleasure, ladies and gentlemen, of introducing Governor William Spry, of Utah. (Applause.)

Governor Spry's address will be found at page 138 of this report.

THE PRESIDENT: Gentlemen, next on the program is an address by Dr. George Otis Smith, Director of the United States Geological Survey, on the subject of "What the West Needs in Coal Land Legislation."

Dr. Smith's paper will be found at page 285 of this report.

THE PRESIDENT: The next paper on the program is a discussion of the Malm process, by Col. A. G. Brownlee, Idaho Springs, Colo., but Mr. Brownlee is very sick and has not been able to attend this convention. The paper will be read and discussed by Mr. John L. Malm.

Mr. Brownlee's address will be found at page 168 of this report.

MR. WM. P. DANIELS, of Colorado: I would like to ask Mr. Malm a question. He will appreciate the fact that suggestions pertaining to the handling of low grade ore are received with just a little bit of suspicion, and I would like to ask if it would be agreeable to you, sir, if a competent committee of metallurgists were appointed by this Congress

to take up the matter of the Malm process and make a thorough and complete examination so as to report to this Congress later on?

MR. MALM: In referring to the new Bureau of Mines, among other matters, that was one of the things I had in mind, and we could thereby get the support of the Bureau of Mines in the solution of this problem without a large appropriation or perhaps no appropriation from Congress.

Dr. Holmes has made mention of the fact that Dr. Douglas has been in a position to take, accept and install safety devices as suggested by the bureau for the conservation of life and of coal. Dr. Douglas has installed these devices and has demonstrated their value. Such suggestions are exactly what the metal miners want. We do hope that the ethics of the Bureau of Mines and its staff will be such as to permit them to investigate metallurgical methods and recommend to the metal miners such as have sufficient merit to warrant their exploitation.

Metal miners through the Western states are afraid of processes generally. They would, however, make possible a thorough commercial demonstration of any methods which claimed to solve the complex ore problem provided it was investigated and endorsed by either the staff of the Bureau of Mines or a committee of able and unprejudiced metallurgists appointed by such an organization as this—the American Mining Congress—in whom the mining fraternity has confidence. Mr. Brunton, Mr. Brownlee, Mr. Stuart Crossdale and others of this Congress, have given this matter some thought—and I desire to say that it would not have been brought to the present state of perfection had it not been for the encouragement received from these men. I would most certainly welcome an investigation of this method which I bring to you and would offer every facility.

MR. DANIELS: Will a motion for the appointment of a committee or a commission of experts be in order?

(At this point Vice-President S. A. Taylor took the chair.)

CHAIRMAN TAYLOR: I think probably it would be a question whether they would serve gratuitously or not. If they would expect to be paid it is a question whether the Congress would have the funds to compensate them. I know of no objection outside of that at present.

MR. DANIELS: If a motion can now be entertained I want to move a committee of five competent metallurgists be appointed by the President of the Congress to investigate the Malm process.

MR. F. M. RYNERSON, Washington: I second the motion.

MR. DANIELS: I believe that thoroughly competent gentlemen will be very glad to serve the Congress without expecting any remuneration; but if they do not I believe that so far as the interests of the metal mining industry are concerned, no money can be spent by the Congress that will be of more benefit to the miners, to the entire Rocky Mountain region, and to the Congress itself as money that it might be necessary to pay to competent men to investigate this Malm process or any other process that may be brought before us that promises a reasonable assurance of success. If I may digress enough to speak briefly in regard to the Bureau of Mines, if a resolution that I had the honor of introducing this morning shall be adopted by the Congress, the appropriation even though it does not reach the amount named in that resolution, shall be made for the benefit of the Bureau of Mines. I believe that no part of this appropriation can be expended with more benefit to the interests of the metal miners than towards the investigation and reporting to us on this very important matter. Mr. Malm answered the second question which was whether he would submit to a thorough investigation by a competent commission under authority of the bureau of mines, and I believe that the present director of the Bureau of Mines if he gets the money can take up those very things. Now it is impossible to test these processes to determine whether they are available or not without some money, and these gentlemen who have the processes come to us and say we have got

it so far and can't go any farther until we have some more money. As I said, we are a little suspicious of Mr. Malm and some of the others, and we hesitate about putting up the money, if perchance we have it. If Mr. Malm, or any one else, can come to us with the authority of a competent Commission, appointed and acting through the Bureau of Mines or the American Mining Congress and can say there is good reason at least to believe that this process will be available, we are then encouraged to go down in our pockets.

MR. MALM: Our industry is in a deplorable condition, if we can't get the contribution of the services of engineers for the investigation of the problem which is as important as this one. It seems to me enough metal miners and metallurgists of prominence and of ability ought to be found connected with this Congress to offer their services. The reason I recommend this is I believe that an investigation of this kind, working in connection with the committee on frauds, if you have such a committee, would be of great benefit. I should like to see a committee of the American Mining Congress, or of any other scientific association which is interested in this problem, get at the facts and report.

MR. DANIELS: I would just like to say if my motion does not include the investigation of any process that seems worthy I would like to so amend it.

MR. E. L. MARTIN, Georgia: I don't want to criticise at all, but I know how hard it has been for this American Mining Congress to pay even its Secretary, and for that reason we have to be pretty careful about voting to spend money for this particular purpose, especially when we haven't the money. This is the only fault I have to find about it. Our Secretary could inform us about our financial condition better than any one else.

CHAIRMAN TAYLOR: He might be a little bit backward about it, but I know the Secretary's salary is practically two years in arrears, so that he would likely not care to state, but I think the Congress ought to know that. I felt that we would have some difficulty in paying the expenses of the services of experts of this kind, and yet I believe with Mr. Malm that there ought to be engineers sufficiently interested to investigate these questions and give the mining world the benefit of their investigation.

MR. J. M. DINWIDDIE, Iowa: If we go on record adopting this motion we certainly will show that we are somewhat interested in metal mining, and if we fail to raise the money to pay the expenses of these men and we can't get any to volunteer their services, it will not reflect on our intention at least, and I would like to see the motion adopted to see what we can do.

MR. HORACE J. STEVENS, Michigan: It seems to me while this is a matter a little outside of the proceedings, that we ought to pass the hat and pay the Secretary his back salary. I am willing to chip in \$10 and perhaps a great many others are willing to contribute. It is not creditable to us to leave matters in this condition.

Upon the motion being put it was declared carried.

MR. MALM: I should like to see that motion refer to all processes for the treatment of complex ores.

MR. DANIELS: I have no objection to any minor change of that kind, that will accomplish the result.

MR. STEVENS: My preceding remarks were entirely out of order, but it seems to me that something should be done regarding this two years' back salary. If there is no other way of raising it, why can't we get together and square it up?

MR. RYNERSON: I rise to a question of personal privilege. I move you, if it is in order that tomorrow morning after the reading of the minutes of this Congress, that this debt of the Secretary be made a special order of business, that it might be taken up and the debt liquidated, so far as possible, anyway.

Motion unanimously carried.

CHAIRMAN TAYLOR: We have a little time and I notice that we passed over the discussion under the five-minute rule of Dr. Smith's paper. We will now hear any remarks or discussion of that paper, if there be any.

SECRETARY CALLBREATH: Mr. President, I would like to make an explanation of a statement which I think Dr. Smith did intend to make. The statement was made by Dr. Smith that all the money received from the Government lands in the West was returned to the West through the reclamation service. In a way that is true, but it amounts to a borrowing of this money and not a payment to the West. The money becomes a mortgage upon the land which is to be reclaimed, and will eventually be paid back to the United States treasury. While the reclamation work is of great value to the West it is hardly fair to say that this money is paid back to the West; it is loaned back to the West.

MR. DANIELS: I would like to say just a word by way perhaps of something that might be termed as ultra conservationism. It was with a very great deal of pleasure and interest that I listened this afternoon to two of the most intelligent and temperate discussions of this question that it has ever been my lot to hear, but if we will stop for a moment to think that it was the violation of law that made ultra conservationism, we will appreciate at once that there was some reason for it. I am minded to think of the different sentiment that is exhibited in this Congress from time to time in regard to the administration of the forestry bureau. I believe that some of those present, none of those perhaps who read the report of the forestry committee appointed by this Congress which was presented to the session at Goldfield two years ago, will accuse any member of that committee of being prejudiced in favor of the then administration of the forestry bureau. That committee up to the time that I ceased to be a member of it, existed for about a year and half. It invited complaint from all over the Rocky Mountain region; it investigated the complaints carefully, and the net result was that it could find no good cause of complaint against the administration of the forestry bureau that was not immediately remedied when brought to the attention of the proper officers, except one complaint concerning the use of timber.

Perhaps because there was no one to defend it this report was practically kicked under the table and the members of the committee with it, because the session at Goldfield, as it has been reported to me, would not listen to anything in the way of criticism of Mr. Pinchot. We seem to have drifted a long way on the other side. Now this committee found what has been my own observation, so far as the state of Colorado is concerned, during an experience of about 16 years of metal mining, that the great trouble with the forestry bureau, the great cause of complaint was the method necessary to comply with the law in locating and proving up mineral claims. There were abuses by over zealous employes and by employes that, as has been said, by some one, deemed themselves autocrats by virtue of their position, but those abuses after they came to the knowledge of the forestry committee as then composed, were remedied just as soon as they were properly brought to the attention of the proper officers. There was at one time a rule of the bureau requiring that a ranger should pass upon a claim and say whether it was likely to make a paying mine or not, before the approval of the application for a patent. Well, that was one of the most absurd things that was ever thought of, but when it was brought to Mr. Pinchot's attention it was remedied. There is no such requirement as that now, and has not been for more than two years, and yet within the past three months the Governor of that great mining state has said that it is still the practice of the forestry bureau. I have no brief to defend the forestry bureau, or the ex-forester, but let us give fair, honest and candid treatment.

MR. DINWIDDIE: Mr. Chairman, have you a committee on fraud, to report?

SECRETARY CALLBREATH: There was no such committee appointed last year.

MR. DINWIDDIE: I notice in the proceedings of 1909 that a resolution was offered asking those interested to urge both state and Nation to pass a law requiring sworn statements of the conditions of mines. That was in connection with the item of fraud. It seems to me that they commenced after the fraud had been committed. What I want to argue for and in the interest of a revival of legitimate mining, is that there should be such a committee and that the committee should provide that the public should know from whence the land came out of which the claim was made, what it cost, what it is capitalized for, what the promoter got out of it, and there should be no permission to sell promoters stock until the treasury stock is exhausted. To put those things in a way accessible to the public before the mine was sold, before it was promoted, would be a step in the right way to prevent fraud, and then when we investigate we know what we are doing. I believe that would revive legitimate mining conditions in our country and prevent promoters from disgracing the mining industry.

SECRETARY CALLBREATH: May I say a word on the subject? I have felt during all my time as Secretary of the Mining Congress that the subject which has just been under discussion was one of the most important items of work which the Mining Congress could carry on. I have felt that no effort would be of greater service than that which would protect the mining investor against unfair promotion, and direct him into those channels into which he might hope for a profit. What the West needs is the greater development of its mineral resources, and what the Nation needs is that there shall be greater development of her gold resources. We are all agreed that the financial condition of our country is fundamentally wrong. We are through commissions and otherwise attempting to frame some method by which the present dangerous condition can be averted. When California produced \$50,000,000 worth of gold in a year there was no money stringency in this country, and whenever the time comes that our Western mountains, pouring forth their stream of gold, shall again produce a proportionate amount, all our monetary commissions can retire. We will have no further use for them. How are we going to do that? We must do it by honest, intelligent development work. We must do it by the encouragement of those men like our friend who stood before you this afternoon with a process, by which he believes that he can solve the treatment of low grade ores on an economical basis. The great wealth of the West is not in the high grade ore which we hear so much about. It is not the Independence and the Portland and the other big gold producing mines, but it is the low grade ore where a difference of 50-cents a ton in the cost of treatment or in transportation would make the difference between success and failure in management. How are we going to work this out? By intelligent and continued development work and investigation along the various lines.

One of the things which the West needed through the Bureau of Mines was that it might carry on to a final conclusion the very investigation which has been carried on thus far through what is known as the Malm process. The word process is a hateful word. Hundreds of men have lost fortunes by trying to develop secret processes because they were not smart enough to understand whether the man presenting the process to them was telling the truth or not. Men have shown by laboratory tests something which apparently looked good by which the process man seemed able to take out of the ore values which assayers could not find, and hundreds of men have invested their money and lost. The mention of a secret process is hateful, and yet we must not lose sight of the fact that it is only through investigation that better results can be obtained. Nature put these values in the ore, and there must be some scientific process by which we can crawl into the hole which nature went in and come out with the values of all those metals, ready for the market. This is not the work of a day. It is the work of years.

It is not a work which is going to cost a few dollars; it is going to cost thousands and possible hundreds of thousands of dollars to carry out such scientific investigation as will enable us to reverse the process of nature. Today we are paying thousands of dollars to the smelters to buy coal and coke to burn up certain parts of the ore and send it off into the air through the smokestack, in order that we may get the residue of mineral value, often burning out more than we recover.

This enormous waste should be prevented. Its prevention will be real conservation. The protection of investors is a necessary element entering into this investigation, because just to the extent that you have money invested in honest, intelligent development enterprises you will have the men back of the investigations which will lead to the final result. You will have the men in the field who will insist that Congress shall open the door to appropriations by which the Bureau of Mines can be authorized to carry on these investigations. In making the last appropriation we secured for the Bureau of Mines Congress deliberately took out of the appropriation act those words which refer to the precious metal mining of the West. We were helpless. The man who went to Washington in that behalf was not able to go at the opening of Congress because there was no money in the treasury to meet the expense. When he did go the appropriation bill was so far made up that it was impossible to secure a change. And so the act was emasculated, and when we get down to the point where there was a reference to precious metals, those words were stricken out.

The reason is simple enough. In a general way we all endorse the principle. We all know that the expenses of the National Government are a great deal more than they should be. We know that when a door is open to any new line of appropriations that it continues to open wider and wider. The members of Congress who opposed those appropriations opposed them for the very same reason that they opposed the Bureau of Mines bill. Because it opened a door to a new line of appropriations. The Bureau of Mines bill was passed at the request of the precious metal miners, but with special reference to the protection of the lives of miners in the coal mines. Without the aid and sympathy of the coal miners we never could have secured the support which opened this door. We have the same fight over the first appropriation for precious metal mining investigations and we have that fight to make with our coal friends feeling no particular interest. In the Bureau of Mines campaign they were interested, and I would like to say in response to something said on the floor this morning, that the precious metal miners succeeded in bringing about the passage of the Bureau of Mines bill. I think I should say that the coal people spent very much more money in that campaign than the metal miners. The coal miners came to Washington one at a time and a dozen at a time, and went to the members of Congress and helped us get that influence which enabled us to secure the passage of the Bureau of Mines bill. All of our efforts from the West would not have succeeded had we not had their support. We are needing their support in this new fight and I believe they are going to be with us, but we must remember that this is personal to the West, the coal people have no special interest in that investigation, and therefore we must secure their support by some other method than by appeal to their personal interest. I believe the coal people will stand with us in this fight, but we must keep up the fight, and it is not an easy fight.

Some people think it is easy to go down to Washington and get a million dollars for some worthy purpose, but having gone through a few campaigns of this kind I want to say that to get a ten thousand dollar appropriation requires a long, hard fight, and it won't win itself. If we succeed in that we must have the support of a strong galaxy of friends back of us, and just to the extent that we make mining profitable, just to the extent that we secure new capital invested in our mines in the West, just to that exact extent may we hope to have men back of us

to help in this fight. Therefore, the work by which we hope to protect investments, is extremely and vitally important, and I have felt all the year that it was one of the most important things we had to do. We had committees for two or three years and some work was done, and fairly good work perhaps. One bill was recommended called the Pardee law, which made it a misdemeanor to misrepresent the sale of mining stock, remedial of course only, and we believed that it was the best thing that could have been done at the time. This law has been enacted by fourteen states.

Now we are approaching a much larger field. I believe that the only final solution is an entire revision of those laws which authorize the creation of public corporations. Just so long as a corporation may pay up a million dollars worth of capital stock, with a two cent postage or four stakes in the ground, the state has set its seal of approval upon the opening doors of fraud, and therefore in my judgment this work is a work which will require experience and the complete and combined effort of the best men for years to accomplish. I don't think it will be done by committees who just make it a little play spell and make a report to this Congress. You must have a committee that will work. You can't expect any committee on earth to look into these things and go to the bottom of these things, investigating the conditions in all the different states and framing up that plan which will meet conditions best, because it is a long, hard task, and will not be solved by the appointment of a committee. There are many different lines of work we ought, to carry on. I hope the day will come when we will have facilities to carry them on properly.

MR. DANIELS: When I first became a member of the American Mining Congress, almost my first experience was the report of a committee on mining frauds, dealing with the Pardee law, which was added to the already too numerous laws on the statute books for the punishment of fraud after it was committed, and full and free discussion of the matter was prevented by what I believed to have been an unfair ruling. Since that time I have expended more than \$250 in an effort to get a good law requiring complete publicity, which I believe is the only remedy for prevention, and I spent \$250 of my own money, without any assistance whatever from the American Mining Congress. I presented a resolution containing a proposed law to the session at Pittsburgh, and it was there passed upon without any discussion, because we had so much else to do that we couldn't discuss matters that were of importance to the miners. That law had been drawn up and examined and amended and changed by three or four of the best mining attorneys in Colorado, among them no less a well known authority than Judge Morrison. The committee on resolutions reported on that law that it contained good points, and they suggested and recommended that it be referred to the committee on mining frauds, and that it be affirmed by attorneys and reported to the next session. That is the last that was ever heard of it until I reintroduced it, or tried to reintroduce it, I don't know yet whether I have been successful or not. I left the Mining Congress, withdrew as a member, because in my opinion it has for six or seven years been standing up in bold marshal array, with courageous face to the front, drums beating and marching backward. I believe that has been the position of the Congress, and I believe that many of your gentlemen who will examine the proceedings of the Congress for the last six years with unbiased minds, and with this particular reference to mining frauds will agree with me. I am very glad indeed to have the assistance this evening of the able Secretary to the particular proposition of an effort to prevent mining frauds. We must have, to rejuvenate and make our Western metal mines producing, we must have development work, which costs money, and you can't get the money from now on until one of two things happens. We have to convince the man who has got the money to invest that we are honest and sincere, that the money he pays us will be put into the ground in trying to

make mines, instead of into our pockets, or else we have got to wait until a new crop of investors grow up. Which is the best to do? You can't legislate honesty into a man who is dishonest. The only way in which you can make that man honest is to provide that he must tell all of the truth in regard to his proposition, whatever it may be, and I tried for 13 successive sessions of the Colorado legislature to get this same proposed mining law adopted—by the way, it does not recognize the sometimes assumed fact that the mine promoter is the only one who is dishonest, and the proposed legislation applies to all promoters whether they be metal men, irrigation, or United Steel.

MR. MALM: I desire to make the suggestion to the board of directors of this Mining Congress that it might be wise to have a board of engineers convene either at Salt Lake City or Denver before whom the various process men might appear and submit their ideas. They ought to be invited to come before such a commission of engineers and I think if they have anything of merit they will be glad to and if they have not they will keep away. I wish to challenge the various process men to a discussion before the committee suggested, of the relative merits of the many processes, believing that the method which presents the greatest merits will be supported and thoroughly proven. I am willing to take my chances on being eliminated along with any of the others if it will be the means of bringing forth any method which will solve the question.

Appoint this committee at once, as it is the most practical means of arriving at the solution of the greatest problem now before the metal mining industry.

Personally I will be glad to present the fullest detail of the method of dry chlorination as developed by The Western Metals Company.

MR. H. O. GRANBERG, Colorado: I would like to ask if it is of sufficient importance to this Mining Congress to consider methods that will truly conserve metals. I claim that it is worthy of careful and earnest consideration. I certainly believe the American Mining Congress should have a committee of a number of men of ability to investigate this waste and the various processes for the conservation of metals, whether it be iron or gold, to see if some definite saving could not be effected.

Whereupon an adjournment was taken until 8 o'clock p. m.

FRIDAY, OCTOBER 27, 1911.

Evening Session, Auditorium Hotel.

The meeting was called to order by the President.

THE PRESIDENT: The first thing on the program is the report of the committee on the general revision of mineral land laws, by Mr. E. B. Kirby, Chairman, St. Louis, Mo.

MR. KIRBY: Your committee wishes now to report progress and ask for a continuation during the coming year. In taking up the matter at Washington it was found that the special session of last summer would not undertake any general revision. A general resolution was therefore prepared, and this will be introduced at the coming session this winter, by our friends in Congress. It will be to the following effect:

Committee report will be found at page 119 of this report.

MR. KIRBY (continuing): Now, since it was found that we had to wait in this matter, your committee took up the question with the senators and representatives of the western states affected, and also with their governors. Their replies, which I would like to read to you if there were time, indicate that they are thoroughly with us upon this question; and that the American Mining Congress has had the general support and approval of the public men of the West to such an extent that many of them take the keenest personal interest in this question, so that we feel assured that at the next session this winter

there will be effective action by Congress on it. Since our program this evening is long I will not read this report, but simply add as one of the explanatory matters, its substance, which is that when Congress takes this action your committee proposes to bring before it a detailed recommendation to urge that they form a commission, a wisely selected commission, authorized to draft a revised code for the use of Congress. This commission should hold public hearings in mining centers in the West and Alaska, and it should call before it men prominent for their knowledge of prospecting, of claims, of locations, operating of mines, and should invite opinions from the public bearing upon the specific points at issue. The authorities and experience of other mining countries should be consulted, and the recommendations of the commission should be presented in the form of a fully drafted report. This, gentlemen, is the substance of what I will not attempt to read in detail.

MR. HARRY S. JOSEPH, Utah: I move you that the report of the committee on the revision of mining laws be accepted with thanks, and that the committee be continued.

Motion seconded and carried.

THE PRESIDENT: Gentlemen, we will now have the pleasure of listening to the Honorable Martin D. Foster, chairman of the committee on mines and mining, House of Representatives, who will address you on the subject of "The Relation of Congress to the Mining Industry." (Applause.)

Congressman Foster's address will be found at page 390 of this report.

THE PRESIDENT: The first meeting of the American Mining Congress was held in Denver some 14 years ago. It was then organized by the western metal miners. Little was thought at that time that we should extend our field to cover all branches of mining, but particularly had organized the gold and silver miners. We have had many very successful meetings; I don't think we have had any more successful than the one which we are now holding in your beautiful city. We have contended for years that the time has come when the Federal Government should aid the mining industry in the same way it has the farmer. Realizing that, we have asked and memorialized Congress for years to create a department of Mines and Mining. It was not granted to us, but eventually through the assistance of the coal miners in the Middle West and the East, with their influence upon their own Congressmen we have succeeded in having the Bureau of Mines established, which is the first stepping stone towards a department which no doubt will come to us in time. I honestly believe we are entitled to this and I hope that the time will not be very far off.

We have a gentleman with us tonight whom it is a special pleasure for the western miners to meet, a gentleman of international reputation, and one to whom we are largely indebted for the development of scientific mining and the reduction of precious metals. I have the pleasure of introducing the Honorable John Hays Hammond, of New York, who will address you on the subject of "Mining as an Investment." (Applause.)

Mr. Hammond's address will be found at page 163 of this report.

THE PRESIDENT: It is indeed very gratifying to me, and I know it is to every other member and delegate of the American Mining Congress, that we are favored with the presence of eminent men, men of national reputation and men in high positions of our government. Their attendance at this meeting, their perusal of what has been said by many of the delegates on the floor of the convention, give them full information as to the condition in the various fields of mining, whether it be in coal or metallurgical districts. If it were not for the fact that you ladies and gentlemen who are here tonight are principally residents of other cities I would almost hesitate to introduce a gentleman who is a resident of Chicago, but I am sure a great many of you have not had the pleasure of seeing the man whom I am going to introduce, or the privilege of listening to any of his remarks. I have the privilege

and pleasure now of introducing the Honorable Walter L. Fisher, the Secretary of the Interior. (Applause.) Mr. Fisher has recently made a trip to Alaska and has spent considerable time in that territory, has looked into the matter most thoroughly and is prepared to give us an intelligent report of the Alaskan situation.

SECRETARY FISHER: Mr. Chairman and Members of the Mining Congress, Ladies and Gentlemen: It is not my custom to read an address, but the importance of the matter is such that I have thought it proper to put my remarks not only in writing but in print, and there are some copies available for the members of the Congress who may possibly be interested in the matter at the close of the meeting.

Before taking up the subject of Alaskan problems I probably should add one more definition to mining to that which my friend, Mr. Hammond, has collected in his long experience. It is one which was given to me in the West this summer, and it fits this occasion appropriately. A mine, it was said to me in the West, is a hole into which more money is put than is ever taken out. (Laughter.)

Secretary Fisher's address will be found at page 363 of this report.

THE PRESIDENT: Members and Delegates: I realize the hour is getting late and you are anxious to get home, but we have a little more business which is of great importance, and I beg of you to give us a little more of your time so as to finish it. The next order of business is the important business of acting on the report of the committee on resolutions.

MR. E. L. MARTIN, Georgia: With the consent of the chairman of the resolutions committee I would move you that a rising vote of thanks be tendered the gentlemen for the very able and valuable addresses that have been delivered by them this evening before this Mining Congress, Messrs. Foster, Hammond and Fisher.

MR. C. O. BARTLETT, Ohio: I second the motion.

(A rising vote of thanks was then extended to the gentlemen referred to.)

MR. E. M. DE LAVERGNE, Colorado, Chairman of the Committee on Resolutions: Mr. President and Members of the Mining Congress: Your committee on resolutions is ready to report. I will say that the committee was composed of energetic, courteous and kind gentlemen, which made the duties of the chairman pleasant instead of arduous. Before reading these resolutions it will be necessary that this Congress decide upon the method of adoption, whether it will be as a whole or on the individual resolutions.

DR. JOSEPH HYDE PRATT, North Carolina: I move that the report of the committee be adopted as a whole. We have had a committee appointed of 35 or 40 members. It has taken every resolution presented to it and gone over it carefully and sometimes referred resolutions to special committees for further consideration, so that the report as presented represents the work of twenty men for two solid days. I move that the report when adopted be adopted as a whole.

MR. H. S. JOSEPH, Utah: I second the motion.

THE PRESIDENT: Gentlemen, you have heard the motion. Are you ready for the question?

MR. W. P. DANIELS, Colorado: Mr. Chairman, I don't see how any man on earth can vote on a question of that kind until we have heard that report, and I want to make the point of order that we cannot consistently and legally take any such action.

THE PRESIDENT: The motion is on the method of adoption.

MR. DANIELS: I understand it is a motion that permits us to either adopt or reject it as a whole. It is absurd.

MR. JOSEPH: The report of the committee can be amended as each resolution is read, and then adopted as a whole as amended.

MR. DANIELS: I make the point of order against the motion, Mr. Chairman. The point of order is, as I am requested to state it,

that we cannot intelligently pass upon anything until we have heard it in all its parts.

DR. PRATT: I withdraw the motion.

THE PRESIDENT: The chair rules that the report of the committee be read first.

MR. ELI T. CONNOR, Pennsylvania: Secretary of the Committee on Resolutions: The report of the committee on resolutions consists of resolutions recommended and adopted by the resolutions committee. The first resolution, prepared by the committee as a substitute for Resolutions No. 1, 7 and 11, is as follows:

Whereas, The development of processes of ore treatment capable of handling with profit the vast low grade deposits and mine dumps of our mining districts is of the greatest importance to the mining industry and to all related industries;

Be It Resolved, That it be the sense of the American Mining Congress that the Congress of the United States be and are hereby memorialized to provide for the establishment, under the direction of the Bureau of Mines, of a metallurgical experiment ore testing station or stations for the purpose of devising methods for the extraction of metals from low grade ores, and appropriate sufficient funds for such purpose.

Resolved Further, That the officers of the American Mining Congress draft a suitable bill providing for the proper carrying of this resolution and that copies of the bill and of this resolution be forwarded to the President of the United States and each senator and representative; and that the officers of the American Mining Congress use all honorable means to the end that such a bill may become a law.

MR. DE LAVERGNE: Mr. President, in order that we do not have to necessarily reread these resolutions, I will move that they be adopted as they are read. Then they will be fresh in the mind. If there is no objection to that I will move the adoption of the first resolution.

MR. BARTLETT: I second the motion.

MR. DANIELS: I would like to ask the chairman of the resolutions committee whether the resolution just read is all that there is in the report of the committee in regard to assistance in connection with the Bureau of Mines or appropriation for the Bureau of Mines, for the metal mining industry. I ask that question for the reason I want to introduce and move a substitute for the report of the committee, if that is all there is on that subject.

MR. DE LAVERGNE: That is practically all.

MR. DANIELS: I want to move as a substitute for the report of the committee, the following resolution: That the Congress disapprove the appropriation for ore testing plants that are to be located at specific places and earnestly urges the appropriation of \$1,000,000 for the use and benefit of the metal mining industry, the appropriation if successfully procured to be expended in the discretion of the Bureau of Mines. I move the adoption of the substitute.

MR. J. M. DINWIDDIE, Iowa: I second the motion.

THE PRESIDENT: Gentlemen, you have heard the substitute offered by Mr. Daniels, of Colorado. Are you ready for the question?

MR. JOSEPH: I rise to a point of order. My point of order is that this resolution was introduced at this morning's session in the regular way and referred to the committee on resolutions, and there acted upon, and the substance of that is contained in the resolution presented by the committee.

MR. CONNER: It has been stated that Resolution No. 1, as presented by this committee, is based upon a compilation of Resolution No. 1 as originally introduced, Resolution No. 7 and Mr. Daniels' Resolution No. 11, all pertaining to the same subject matter.

MR. DANIELS: Mr. Chairman, I would like to be heard just a moment on the point of order. If that point of order is sustained why do we need to have this committee report to us, and act on their report at all?

THE PRESIDENT: I don't believe the point of order is well taken. I think the motion offered by Mr. Daniels is proper, and it is up for a vote.

MR. DANIELS: I wish we had time so that the matter might be gone into fully. I just want to say this as was recited in the preamble of the resolutions that I offered this morning, that if we attempt to get appropriations for specific purposes and have different specified places, we will certainly fail in our effort to get any benefit. If the director of the Bureau of Mines is not competent to take charge of an appropriation made for the benefit of the metal mining industry, let us put some one in his place who is competent. I believe that Dr. Holmes is entirely competent and that if we can get a reasonable appropriation for the benefit of the metal mining industry and leave it to the discretion of that bureau, the present director of that bureau, we will be doing the thing that is for the very best interest of the metal mining industry.

THE PRESIDENT: The motion is on the adoption of the substitute offered by Mr. Daniels, of Colorado.

Motion lost.

THE PRESIDENT: The motion is now on the adoption of the report of the committee.

Motion carried.

The secretary of the committee then read the next resolution, introduced as Resolution No. 10, as follows:

In view of the increasing importance and complexity of the mining and metallurgical industries, the deplorable waste in mining under present methods, and the great need of trained men to aid in improving these conditions and in developing greater safety and efficiency;

Be It Resolved, That the American Mining Congress now in session at Chicago urges the Congress of the United States at Washington to provide for aid and co-operation in the maintenance of mining schools in the several states in a manner analogous to that which has been done in behalf of agriculture.

Be It Resolved, That the members of the American Mining Congress and the friends of the mining industry throughout the country are hereby urged to co-operate in securing the proper legislation necessary to carry above purpose into effect.

MR. DANIELS: I will try to get in the band wagon this time by moving the adoption of the report. (Applause.)

MR. JOSEPH: I will second the motion.

THE PRESIDENT: Gentlemen, you have heard the motion. Are you ready for the question?

MR. BURROUGHS, Michigan: I think that is not the proper thing to state, that that shall be for the establishment of mining schools. I am not sure that Congress could be convinced that all the states would be benefited by mining schools as all states are benefited by agricultural schools. I would be in favor rather that the appropriation should be made for the development of the mineral industry, regardless of whether they are mining states or not.

MR. JOSEPH: The resolution, Mr. Chairman, is in conformity with remarks made here this evening by the Honorable Mr. Foster.

MR. BURROUGHS: Mr. Foster and myself had a little talk and this very point came up in our talk, and I think it would aid in bringing about the results sought by this resolution to make that change, that it shall be for the development of the mineral resources of the states, regardless of whether there are any mining schools or not, and if there are mining schools that the appropriation shall go to the mining schools, naturally, but if there are no mining schools those appropriations should

go to those states for the development of their mineral resources, because all states do have mineral resources. If all are equally considered in this matter, we can probably pass such a bill. I believe that all would be benefited by such an appropriation.

MR. JOSEPH: You will remember that the first resolution provides for the appropriation of moneys for an experiment station somewhere in the states to be designated by Congress.

MR. BURROUGHS: Not in all the states.

MR. JOSEPH: They might have a bureau in every state if it were found necessary.

MR. BURROUGHS: But I think it is necessary that appropriation should now be made, if at all, for the development of the mineral resources of all the states. I would move that the resolution be amended.

THE PRESIDENT: Mr. Burroughs, the probabilities are, which is always the case, a start has to be made, and this will be the start the same as they have done with reference to coal mining operations for the men operating coal mines. They have not started all over the entire country, but they have started in a number of states and it is gradually extending all over the country.

The question before the house is on the adoption of the resolution.

MR. JOSEPH: I move the previous question.

MR. DANIELS: I rise to a point of order that the previous question cannot be asked for when a gentleman is on the floor, has the floor and has made a motion to amend.

MR. JOSEPH: The motion to amend was not seconded.

MR. DANIELS: I will second the motion as soon as opportunity affords itself. I do not believe in stifling debate on these questions that are important to the mining industry, and there has been no opportunity as yet to second the motion because the gentleman has not yielded the floor and we cannot take it away from him by a previous question.

THE PRESIDENT: By the indulgence of the chair the gentleman has been permitted to speak, although he didn't speak to the motion he did make as far as that is concerned, but it is not the intention of the chair to stifle any discussion.

MR. DANIELS: I would move to amend that resolution by changing that paragraph or sentence to read "the scientific study and development of mineral resources of the several states of the union in a manner analagous to that which has been done in behalf of agriculture."

MR. DINWIDDIE: I second that.

DR. PRATT: I would like to say a word against the amendment and in regard to the original resolution. The amendment as it is made brings in two entirely different questions; there is a conflict between what the Bureau of Mines is supposed to do and the work the Bureau of Mines already has done. The resolution as introduced relates simply to schools of mining and in no way to the development of the mineral resources of any state. It states in that resolution that they shall be established similarly to agriculture colleges providing the states want them; they don't have to take them; they don't take them unless a state does a certain thing the same as they do with agricultural or mechanical colleges. To adopt the amendment you have got to go into a long explanation of how that money is to be expended and would bring in an entirely different kind of resolution in connection with the establishment of schools of mining; I see no reason why we shouldn't adopt the resolution as presented by the committee and let it relate simply to the school of mines established as the states want them.

Upon a vote being taken the amendment was lost.

Upon a vote being taken on the adoption of the resolution, the resolution was adopted.

The next resolution, prepared by the committee as a substitute for Resolution No. 5, was then read by the secretary of the committee, as follows:

Resolved, That the American Mining Congress is in hearty sympathy and accord with the efforts being made for the construction and improvement of all inland waterway projects.

MR. B. W. GOODSSELL, Illinois: I am the only man here that is a member of the Deep Waterways Association, and I want to explain to those who belong to the great central west known as the Mississippi Valley that I did offer a resolution here that read to this effect that we ask the co-operation and consent or assent or help or sympathy, or some word that would apply to that, of this Congress to what the people of the middle west are doing towards a deep waterway. It was changed by one of the members to simply cut out and undo the work that I had hoped this great convention would aid in.

THE PRESIDENT: The question is on the adoption of the report of the committee on resolutions as to the last resolution read.

Upon the motion being put the resolution was adopted.

The secretary then read the next resolution, prepared by the committee as a substitute for Resolutions Nos. 2, 6 and 8, as follows:

Resolved, That we are in favor of so modifying the terms of the Sherman anti-trust law as will permit reasonable trade agreements between competitors in the mining business, whenever such agreements will not operate to create monopolies, or result in undue burdens to the public at large, and we recommend to Congress the enactment of such laws as will effect this purpose.

Resolved Further, That a copy of this resolution be sent to Senator Clapp, Chairman of the Senate Interstate Commerce Committee.

MR. JOSEPH: I move the adoption of the resolution.

Motion seconded and carried.

The secretary then read the next resolution, prepared by the committee as a substitute for Resolution No. 9, as follows:

Whereas, The brightest and ablest minds of this country are being exercised to prevent the gross unnecessary waste of our natural resources and to protect life and limb; and

Whereas, The present wasteful and dangerous method of mining coal should receive most careful consideration; and

Whereas, Much relief can be secured in protecting the lives of miners and in the conservation of coal by the more general use of picks and the prohibition of excessive use of powder;

Therefore, Be It Resolved, That we recommend that the practice of shooting-off-the-solid be discouraged.

MR. DE LAVERGNE: I move the adoption of the resolution.

MR. S. A. TAYLOR, Pennsylvania: I am heartily in sympathy with this resolution, but there are some sections of the country that will oppose this very strongly. You take the sections of the country that are using their coal for the manufacture of coke. Their idea is to have that coal made small not for domestic use, but so that they will not have to crush it before they put it in their furnaces. I apprehend that the Mining Congress will come in for considerable criticism at the hands of those people, and while this resolution I believe is theoretically correct, it will save considerable danger in the mines, but whether or not it is too sweeping is the question that arises in my mind. In other words, this same resolution has practically been brought about by the coal operators, and whether the intent of that resolution as presented was to make it an entering wedge for some purpose of that kind, I do not know. I do realize, however, that it will have a great deal of opposition in some sections of the country.

Upon the motion being put it was declared carried.

The secretary of the committee then read the next resolution, prepared by the committee as a substitute for Resolutions Nos. 6 and 6a, as follows:

Resolved, That we are in favor of a fair and just compensation to working men for injuries received while engaged about their duties, one that will be just and equitable to both employer and employe, and we recommend to the Congress of the United States and to the state legislatures the enactment of such legislation as will secure this result.

Resolved, That the thanks of this Congress be extended to Messrs. John H. Jones, David Ross, W. R. Woodford and J. W. Dawson, the committee heretofore appointed to investigate this subject, for their untiring effort in aid of the solution of this problem.

Resolved, Further, That a copy of this resolution be forwarded to Senator Sutherland, chairman of the Congressional committee having this matter now under investigation.

MR. JOSEPH: I move the adoption of the report.

MR. DANIELS: That is a resolution I guess none of us will be likely to object to, but it seems to me this great American Mining Congress ought to be able here and now to say something decisive as to what is fair and reasonable, or it ought to provide for a committee that will take up the question and advise it. I believe we are all in favor of any legislation on any subject that is fair and reasonable and just to both sides. The difficulty is that we sometimes find a very great obstacle and a very great difference of opinion in arriving at what is fair and reasonable. I move as an amendment to the report of the committee that a committee of three be appointed to take up and investigate the matter as to what is fair and reasonable in the opinion of the American Mining Congress, and report at the next session.

MR. S. A. TAYLOR: The statement has been made and it is a fact that the states in the Union that have attempted to adopt a workman's compensation clause have done so, and they have in the main been declared unconstitutional. Without stating what state it is, I will say one state in the Union has adopted a workman's compensation law, which has been declared unconstitutional, and that will now be taken to the Supreme Court of the United States. By the time that decision is made the miners' committee and Congress will know how to act.

THE PRESIDENT: For Mr. Daniels' information I want to state this matter has been in the hands of a committee for a year, and the committee on resolutions has acted upon the report made by the special committee which has been in session and working on that for the past year.

MR. DANIELS: It doesn't seem to me, Mr. President, that that fully complies with the objection or satisfies the objection that I made. It is true, as the gentleman has said, the state of New York enacted a workman's compensation law which the state supreme court has declared unconstitutional. I don't know of any other state where the compensation act has been enacted that it has been decided to be constitutional.

A DELEGATE: It has been declared constitutional in Washington, and I understand from this delegate that Michigan has also declared the act constitutional.

DR. DANIELS: Now that does not quite apply to the point I tried to make, because we have a great many laws that have been declared constitutional by our courts that some of us, and sometimes a very large class of us, declare that even if constitutional they are very unfair and very unjust. We have had a national committee or commission on this same subject, and they have agreed upon a report, it has been so stated in the newspapers, that to my mind will be such a burden as will in the case of any material accident in the plants of the smaller operators, put them out of business absolutely. The national commission proposes to recommend that the compensation provided for shall be paid by the employer only, and in case of serious accident what would happen to some of the little fellows who haven't got a million

dollars back of them to carry them through anything of that kind. I never have been able to give the subject very much investigation, but it seems to me that the only fair and equitable compensation law is one which shall provide that the general risk shall be shared by all of those engaged or interested in the industry where the compensation may be required. It seems to me that if a law is enacted that provides that every employer must pay all possible damages that may arise from an accident on his property, it places us absolutely in the hands of the insurance companies. In my opinion, it is the only protection, and I believe if we are obliged to insure against it as individual operators or as individual corporations, that the expense of such insurance will make the difference between operation and idleness.

MR. JOSEPH: Question on the motion to adopt.

MR. DANIELS: I believe any man in this house is likely to be as good as another when he expresses an opposition or wants to amend. It only takes a vote whether he shall be considered.

MR. DINWIDDIE: I second the amendment.

MR. DANIELS: What would be legislation in the opinion of this Mining Congress, to both employer and employe? I believe we should have some information on that point, and I believe we should get our position so that we can say this legislation is right and just, in our opinion, and that other is not.

THE PRESIDENT: The question is on the amendment. All in favor of the amendment offered by Mr. Daniels will say aye; contrary, no. Motion lost.

MR. JOSEPH: I move the original motion.

THE PRESIDENT: The question is on the adoption of the report of the committee. Motion carried.

MR. DINWIDDIE: It seems to me this Congress is willing to vote against a man simply because he opposes the suggestion of the committee.

Mr. Conner then read the next resolution prepared by the committee on resolutions, as follows:

Resolved, That in the opinion of the American Mining Congress, the mining industry has been greatly injured by designing and unscrupulous mine promoters; that the stand heretofore taken by the Congress against this illegitimate business has done much to prohibit it; that the Congress endorses the action of the Postmaster General in his efforts to prevent the use of the United States mails for fraudulent purposes and that it urges the enactment of legislation in all states to prevent such frauds and to increase confidence in mining investments.

Resolved, That a copy of this resolution be forwarded to the Postmaster General.

MR. JOSEPH: I move the adoption of the report.

Motion seconded.

MR. DANIELS: I would like to ask if the two resolutions I introduced this morning because they were not written will receive any consideration, or be reported on?

MR. DE LAVERGNE: Mr. Daniels, your resolutions were type-written, read and considered.

MR. DANIELS: I assume then they are pigeonholed.

MR. DE LAVERGNE: No, sir. They were considered and embodied in the resolution that has previously been adopted. I think you will see that they are.

Motion carried.

The secretary of the committee then read the next resolution, prepared by the committee on resolutions, as follows:

Whereas, The effective and meritorius work of the American Mining Congress has escaped the attention of a vast number of interests that should be benefited thereby; and

Whereas, The public at large are directly or indirectly affected by the carrying out of the undertakings of this Congress;

Be It Therefore Resolved, That we recommend that a publicity committee should be created in the following manner, to-wit: One member from each state represented be appointed by the president upon recommendation of the delegates from state in which he lives, and these members so selected shall each select four other members from among the different mining industries in his state. The member in each state appointed by the president, together with the four members he may appoint, shall constitute a state committee through whom all matters of publicity shall be conducted. The secretary of the American Mining Congress shall furnish the state committee with all necessary stationery, stamps and stenographic expenses as the committee may require.

MR. DANIELS: Mr. Chairman, I move the adoption of that resolution, and for fear that I will be too late I want to give notice that I want to move an amendment.

MR. JOSEPH: I second the motion.

MR. DINWIDDIE: I understand this question received considerable attention at the hands of the committee, and I want to congratulate the committee on their success in preventing publicity in this city. I want to condemn this city somewhat for not giving some attention to this Congress, a Congress that is worth as much to the country as this is certainly is deserving of at least as much mention as is the man who is to address it. I say that is not the proper treatment of a Congress of this importance.

MR. JOSEPH: Mr. Chairman, for the benefit of the gentleman and the other members of the Congress I will say that your committee has dealt with that proposition in a sort of negative way, and a resolution will be read here in a few moments, and if the gentleman desires to amend it some of us may second the amendment.

MR. JOHN MAYER, Missouri: I think that resolution ought to be adopted as it is. I don't think we ought to find any fault with the resolutions committee or the publicity committee.

MR. DANIELS: I would like to state my amendment. Possibly it will apply more appropriately to the resolution that is to come later. I wish to move to amend this resolution as follows: "That the American Mining Congress send its thanks to the press of Chicago for the extremely thorough manner in which they have reported the proceedings of the Congress for the enlightenment of the reading public."

MR. JOSEPH: I rise to a point of order. That has nothing to do with the subject matter of this resolution at all.

THE PRESIDENT: I think the point of order is well taken. The motion is on the adoption of the report of the committee.

Motion carried.

The secretary of the committee then read the next resolution prepared by the committee on resolutions, as follows:

We have viewed with extreme gratification and gratitude the hospitality and good fellowship extended by the citizens of Chicago to our members and delegates and their families, and we herewith tender thanks to the State of Illinois, its Governor, the City of Chicago, its Mayor and others who have so royally welcomed us and made our sojourn here so pleasant as well as profitable.

We especially appreciate the hospitality and good fellowship of the local executive committee and particularly of Messrs. C. M. Moderwell, E. T. Bent and George Holmes Cushing, who have by their untiring efforts added much to the pleasure and profit of our visit.

We also wish to express our appreciation of the many courtesies extended the members and delegates to the Congress by the management of the Hotel La Salle and the Auditorium Hotel.

We especially commend the efforts of the technical and trade journals, International News service, the United Press and the Associated Press, the Chicago Daily Post, the Chicago Daily News and the Chicago Journal in according publicity to the proceedings of this Congress.

MR. BARTLETT: I move the adoption of the resolution.

DR. PRATT: I move that an amendment be made to this resolution to the effect that a vote of thanks or recognition be also given to the management of the Hotel La Salle and the Auditorium Hotel for many courtesies extended in connection with the Congress.

THE PRESIDENT: The secretary will make that correction in the resolution.

MR. GOODSSELL: Just one word in explanation. Being a resident of Chicago and being a reader of all the newspapers, I want to state one thing that may break a cloud that seems to hang over the papers. As a delegate to the great deep waterways convention held here two weeks ago, the Tribune and the other papers gave the formal notices in a very slight way until the convention broke up, at which time it gave, I remember now the Tribune gave four or five columns, a general writeup, that could not have been done by piecemeal.

THE PRESIDENT: I think our technical press, for instance, the Black Diamond, Fuel, and the Mining World deserve a great deal of credit for the courtesies they have shown us. I believe special mention should be made of those papers.

MR. BARTLETT: The technical press ought to include Mines Minerals and all of those papers, for they have spent lots of money and they have been working night and day to get their papers out by Saturday morning. If we are going to say anything about papers let us not omit those technical trade papers.

THE PRESIDENT: With the unanimous consent of those present the Secretary will be requested to make the proper amendment recognizing the technical papers and the hotels.

MR. S. A. TAYLOR: I feel while the committee has mentioned the executive committee, that there are two or three men who ought to receive special mention in this connection. Mr. Bent and Mr. Moderwell and Mr. Cushing have worked untiringly in this matter, and I know that it is only an oversight in the mention of those names.

Motion unanimously carried.

The secretary of the committee then read the next resolution prepared by the committee on resolutions, as follows:

Resolved, That this Congress disapproves of the efforts of interested parties to have established national parks on the public domain wherein are known to exist deposits of oil, coal and other mineral wealth.

MR. JOSEPH: I move the adoption of the report.

Motion seconded and carried.

The secretary of the committee then read the next resolution, prepared by the committee as a substitute for Resolutions Nos. 3 and 13, as follows:

Resolved, That the American Mining Congress urges upon the Congress of the United States the importance of enacting, at its approaching session, such legislation as will bring about the opening up and operation of coal mines in Alaska, on such basis as may be best for both the present and permanent welfare of the Alaskan people.

Resolved, That the president of the American Mining Congress, appoints a committee of five to co-operate with the Honorable Secretary of the Interior in securing the enactment by the Congress of the United States, of such legislation as will best and most promptly accomplish the above purpose.

MR. G. McM. ROSS, California: As a western metal miner and as a member of the committee on resolutions, I wish to express my regret that the committee had not heard the address of the Secretary of the Interior before they adopted this resolution. Had we done so, speaking for myself, I certainly would have endeavored to have had the great benefits promised from government control extended to a larger and more populous territory than Alaska. I personally would have endeavored to have had an experiment tried in Illinois of governmental control, such as was suggested by the Secretary of the Interior.

Motion carried.

The secretary of the committee then read the next resolution prepared by the committee on resolutions, as follows:

Whereas, Since our meeting a year ago a number of members conspicuously identified with the work of this Congress have departed this life, among whom was prominent George W. E. Dorsey, of Utah, who at the time of his death was a director in this organization—a man possessed of a kind and lovable character and to whose personal interest and effort is due the success of much of the work of this body:

Therefore, Be It Resolved, That to the family and friends and loved ones of those who have passed away, the earnest sympathy of this Congress is extended, and

Resolved, Further, That a copy of this resolution be forwarded to Mrs. Dorsey.

MR. BARTLETT: I move the adoption of the resolution.

Motion carried.

MR. CONNER: Now, Mr. Chairman, I have read all the resolutions that were acted upon or prepared by the resolutions committee. I desire to now present the resolution passed by the delegates from Pennsylvania.

The secretary then read the resolution, as follows:

Whereas, The American Mining Congress was largely instrumental in inducing the government of the United States to create a Bureau of Mines;

Resolved, That the Mining Congress takes this occasion to express its thanks to the President and Congress of the United States for the creation of said Bureau of Mines and its high commendation of the work so far accomplished under the able direction of Dr. J. A. Holmes; and

Resolved, Further, That the Secretary is instructed to transmit to the Hon. William Howard Taft, President of the United States, the Hon. James T. Sherman, President of the Senate, and the Hon. Champ Clark, Speaker of the House of Representatives, and also to Dr. Holmes, copies of this resolution.

MR. ROSS: I move the adoption of the resolution.

Motion unanimously carried.

MR. ROSS: I would like to move, if it is in order, that a vote of thanks be tendered the presiding officers and our secretary and such other officers of the convention who so ably conducted its affairs.

MR. BURROUGHS: I second the motion.

MR. JOSEPH: I will put the motion. The motion is that a vote of thanks be extended to all the gentlemen who so ably conducted the affairs of this Congress and brought it to such a successful conclusion.

Motion unanimously carried.

MR. E. C. WETHERLY, Colorado: I dropped into camp rather late this morning. The failure of the papers to give me any information forces me to ask whether the committee on smelting rates and ore treatment and freight rates has had anything to report that could be embodied in a resolution. Four years ago a gentleman was very active in taking up their question of smelting rates and ore treatment, and since that time we have heard nothing at all.

MR. JOSEPH: I suppose the gentleman's remarks were directed at me. I want to say the committee of two or three years ago, if the gentleman will turn back to the report, consisted of Mr. De LaVergne, myself, Judge Colburn and Mr. Riter. The committee met in Denver and formulated a public protest which was brought before this Congress, an open protest against the exorbitant smelting rates that were then in existence, and we recommended at that time that the method by which that problem could be met would be by the establishment of independent smelters, and we were fortunate enough in our state to have a man public-spirited enough, a member of this Congress, Jesse Knight, who put in some \$400,000 into an independent smelter in Utah. While it has proved a financial failure as far as Mr. Knight was concerned, it had this effect: It brought down smelting rates from the large corporations, and as far as the report of the committee on ore returns was concerned, I want to say that I was appointed on that committee in the convention and Mr. MacVichie, of Salt Lake, and Mr. Becker, of Los Angeles, and we failed to hold a meeting because we could not make connections with one another. We made our report but I have not seen it. I suppose it was lost in the shuffle. As far as Mr. MacVichie and myself were concerned, we submitted our report to Mr. Becker, and it may be that Mr. Becker failed to bring it in.

MR. S. A. TAYLOR: We have voted on the resolutions, and I think before adjourning we ought to pass a vote of thanks to the men who spent two days in getting them up. Therefore, I move a vote of thanks be given the resolutions committee.

Motion unanimously carried.

MR. WETHERLY: Before you proceed with the motion to adjourn, I want to say in connection with my question, that when Mr. Joseph brought in that resolution four years ago we had no such thing as a Bureau of Mines. We have had a scholarly, professorial and legal address by the Secretary of the Interior this evening, who expressly emphasized the function of the Government. Now we have a Bureau of Mines which was not in existence when Mr. Joseph worked so hard and made a very eloquent speech, as I remember reading it, I was not a member of the Congress, and since we have had the Bureau of Mines you are willing to go to that extent that we can ask for the function of government to be employed in our behalf, why should not a committee be appointed to ask the government under these conditions to help us in this matter?

THE PRESIDENT: I really think from the work done by the committee it was demonstrated that those questions are really local. They are state matters. It is a matter of competition and a matter of effort amongst home members. As Mr. Joseph said, in our own state, it has been a matter of competition, and I think we have done about as well in my state as any other state. As Mr. Joseph said, Mr. Knight, through his efforts established an independent smelter and brought down the rates, which the other smelters had been charging, but as it proved a failure he had to close down his plant, and since that time we have been forced again to go to the large concerns.

MR. WETHERLY: Can't we ask a little assistance to break up monopolies? The first two or three columns of the Tribune today were occupied with what they were going to do with the steel trust.

THE PRESIDENT: In addition, I might say that our local committee took up the matter with the railroads, and after very hard work for months and months we finally succeeded in getting quite a reduction in the railroad rates. So you see we have worked at home.

Whereupon an adjournment was taken until 10 o'clock a. m. October 28.

SATURDAY, OCT. 28, 1911.

Morning Session—Orchestra Hall.

The meeting was called to order by President John Dern.

THE PRESIDENT: Members and Delegates of the American Mining Congress, Ladies and Gentlemen: It is a very gratifying recognition of the American Mining Congress, that the President of the United States has favored us with his presence. In him the mining industry of this country recognizes a true friend of that great industry. (Applause.) The American Mining Congress has contended for years for a department of mines so that we could have a voice in the government and administration of that great industry. We have striven for years and have memorialized Congress and demanded Congress to create a department. At the time of the President's visit two years ago to the far west I had the pleasure of discussing the matter with him, and he advised me it would be wise to start the same as other departments have, particularly the department of agriculture, which now is recognized as one of the main departments in the Federal Government, suggesting that instead of contending at that time for a department to ask for a bureau out of which eventually a department would grow. I communicated this view expressed to me by the President to the American Mining Congress in session shortly thereafter at Goldfield, and upon that suggestion our committee proceeded. Through the assistance of our western representatives in Congress and the Senate, and the cooperation of the coal men of the east and the iron men of the north, and the great assistance of the President himself, the Bureau of Mines was established. (Applause.)

Great results have been accomplished particularly in the coal fields, the first and paramount work being the saving of human life. Now other fields must be opened, and while the President is here—and as this may be the last time as retiring president of the Mining Congress that I may have the pleasure of speaking to you—I would ask that he use his good offices as President of the United States to intercede for the precious metal miners of the west (applause) and recommend that Congress make an appropriation which will start the work of research in that particular branch of the mining industry which is so much in need. Ladies and gentlemen, I have the pleasure and the great privilege to introduce to you the President of the United States, the Honorable William Howard Taft. (Applause.)

President Taft's address will be found at page 394 of this report.

PRESIDENT DERN: This finishes our program and the Fourteenth Annual Session of the American Mining Congress now stands adjourned sine die.



MEETING OF MEMBERS

WEDNESDAY, OCTOBER 25, 1911.

7:30 P. M.

Meeting was called to order by the President. The Secretary reported that 283 members were present in person and by proxy, being a quorum of the membership.

THE PRESIDENT: We will have the Secretary read the minutes of the meetings of the executive committee.

Secretary Callbreath then read the minutes of the several meetings.

THE PRESIDENT: If there are no objections the minutes will stand approved as read, and the action of the executive committee in regard to the organization is ratified and approved.

The Secretary will now read the financial statement, as follows:

American Mining Congress.

Financial statement covering period September 1, 1910, to September 30, 1911.

RECEIPTS.

Cash on hand September 1, 1910.....	\$1,351.95
Received from life membership fees.....	\$ 100.00
Received from annual membership fees.....	1,745.00
Received from annual membership dues.....	3,770.00
Los Angeles Convention Fund.....	3,870.00
Chicago Convention Fund.....	500.00
Miscellaneous	211.95
	<hr/>
	10,197.65
	<hr/>
	\$11,549.60

DISBURSEMENTS.

Washington legislative expense and Secretary's traveling expense	\$1,852.48
Salaries, Secretary, Assistant Secretary and Clerks, Denver office	4,929.25
Salaries, Organizers and traveling expenses.....	1,375.90
Printing	1,919.50
Postage	351.50
Office supplies	121.63
Rent	350.00
Exchange	23.75
Miscellaneous	272.11
	<hr/>
	\$11,196.12

Balance cash on hand October 1, 1911.....\$ 353.48

Denver, Colo., Oct. 3, 1911.

I hereby certify that the foregoing is a correct statement of the receipts and disbursements of the American Mining Congress, for the period from September 1, 1910 to September 30, 1911.

(Signed)

J. F. CALLBREATH, Jr.,
Secretary.

Denver, Colo., Oct. 5, 1911.

We, the undersigned members of the Auditing Committee of the American Mining Congress, having examined the vouchers and accounts of the Secretary, covering transactions for the period from

September 1, 1910, to September 30, 1911, heroby certify that we find the same to be correct, and that the statement hereto attached is a correct statement of the financial transactions of the American Mining Congress during said period.

(Signed)

E. G. REINERT,
D. W. BRUNTON,
Members Auditing Committee.

MR. HORACE J. STEVENS, Michigan: I move the report be received and placed on file.

THE PRESIDENT: It has been moved and seconded that the report of the Secretary of the financial condition of the Congress be received and placed on file, and made a part of the record.

SECRETARY CALLBREATH: I would be very glad if this organization would make a further examination of these accounts.

THE PRESIDENT: I was going simply to say as President of the Congress and of course not living in the same city as Mr. Callbreath does I have been compelled to sign checks in blank, but I have checked against it always, as he has stated, at the first of every month. Mr. Callbreath renders a statement the first of every month accompanied by duplicate vouchers covering all expenditures during the month as well as a statement as to the receipts, as you have seen from his own report, which is certified by the auditing committee. I do not think it is necessary that any further investigation or any other recommendation should be made. The auditing committee are men of ability, confidence and reliability, and they having approved it I think is ample evidence and all that is required in the premises.

Motion carried.

THE PRESIDENT: It has been customary at our other meetings that the members elect a nominating committee to report later on as to the candidates for directors.

MR. E. L. DE LESTRY, Minnesota: It is the custom of the association to have a nominating committee generally widely scattered in territory and interest to avoid any possible accusation of a frame-up and with the view of selecting those men for the guidance of our affairs best qualified to take charge of each interest. I would like to be permitted to present a list of five gentlemen for your consideration not with the view it shall be final but with the idea of representing the various sections of the country and interests of all the people. I take pleasure in presenting the names of Dr. Haworth, Kansas; Mr. E. T. Bent, of Illinois; Judge Thomas C. Burke, Oregon; Dr. Talmage, Utah, and Mr. De LaVergne, of Colorado. I submit this list to the membership as a suggestion and not that it shall be final. I believe upon close inspection of the list it will be found they are the best gentlemen we can have at this time. Give this committee time until Friday morning to canvass the situation and present to the members a list of officers and directors that they would like to present for election. This matter should receive serious consideration and we want for the management of our affairs the coming year the best material that we can possibly select. We have today examples which show the magnitude of our work spreading all over the country. I have never realized so much that this Middle West is such a vital factor. Gentlemen, I hope you can see your way clear to adopt this list. The members have always been identified with this work, and we have canvassed this matter during the afternoon. It is not a personal matter with me. I know but two men on this list personally, and I feel sure that our interests will be well taken care of if entrusted to these five gentlemen to bring in a list of candidates to be voted on Friday morning.

THE PRESIDENT: Do you make that as a motion?

MR. DE LESTRY: I do, Mr. Chairman.

THE PRESIDENT: It has been moved that Dr. Haworth, of Kansas; Mr. Bent, of Illinois; Judge Burke, of Oregon; Dr. Talmage, of Utah, and Mr. De LaVergne, of Colorado, be named as the nomi-

nating committee to report just prior to our regular session Friday morning. Are you ready for the question?

Motion seconded and carried.

DR. E. R. BUCKLEY, Illinois: I want to ask the President what has been done with the resolution which was made by Mr. Dorsey, who is now deceased, at the Los Angeles meeting. I don't think it would be out of place to read that resolution. I would like to have a report of what has been done in that connection. (Reading.)

MR. DORSEY: At this time I would like to offer this resolution, which I will read:

Whereas, Certain promises and pledges, made by the delegation from the State of Colorado at the session of the Congress held at Portland, Oregon, in 1904, at the time the Congress was called to vote upon the location of permanent headquarters, have not been kept and fulfilled, and the assistance promised has not been given, and as the promises and pledges, so made at that time induced the members of the Congress held at Portland to vote to locate headquarters in the City of Denver, and, further, much dissatisfaction has been expressed at the failure to keep the agreements made;

Therefore, be it resolved, That the directors of this Congress be, and they are hereby, authorized to take up at once this matter with the people of Colorado, and in case satisfactory arrangements cannot be made, then the directors are authorized to take such steps as in their judgment seem advisable, to relocate the permanent headquarters of this Congress in some other state.

DR. BUCKLEY: This resolution was introduced by a member of the Congress, one who was a director for a long time and who is now deceased. I think that the members of this Congress would be very glad to have a report on anything that has been done on the part of the board of directors in carrying out the instructions of the members at that meeting.

SECRETARY CALLBREATH: Mr. Chairman, there is very little to be said in reply. At your request I submitted the resolution to the Chamber of Commerce, in Denver, and it was taken under consideration, but there was never any action taken, so far as I have heard.

DR. BUCKLEY: Mr. President, when did you receive the report to that effect?

THE PRESIDENT: I think I received the report to that effect at the time we had the meeting in Salt Lake City.

DR. BUCKLEY: Since the meeting was held in Salt Lake City has there been any action taken on the part of the executive committee with regard to the matter?

THE PRESIDENT: There has been none since.

DR. BUCKLEY: I would like to move, Mr. President, that this meeting of members repeat the instructions to the former board of directors with the request that some action be taken in the matter before the next meeting, a year hence.

DR. ERASMUS HAWORTH, Kansas: I second the motion.

THE PRESIDENT: Gentlemen, you have heard the motion made by Dr. Buckley. Are you ready for the question?

A MEMBER: I would like to ask whether the motion in the matter gives the directors power.

DR. BUCKLEY: It covers the ground thoroughly. It gives the board complete power to act in the matter, and Mr. Dorsey was very careful in wording that resolution, so that it would give them complete power to act in the premises. I made the motion that the same instructions be given the board of directors as were given a year ago in the motion of Mr. Dorsey.

THE PRESIDENT: That was covered in our report at the last annual session, with reference to permanent headquarters.

MR. W. N. SEARCY, Colorado: Of course, being from Colorado, I am naturally interested in seeing the Denver Chamber of Commerce

do its own city justice in this matter. The resolution explains itself. The history of the whole transaction I suppose is set out in this resolution. I spoke to the chairman of the mining committee two days ago about this matter. I do not oppose this motion, or, anything of that kind, but it seems to me that if the Denver Chamber of Commerce, the Commercial Club of Salt Lake City, and these other cities, should take hold of this problem, fully appreciating the situation, and it is something for this executive committee to see to. I think it is simply because of inattention. I would like to make the suggestion that before anything is done a meeting should be held with the Executive Committee of the Denver Chamber of Commerce, to see what that body will do. I think it is more inattention than anything else.

THE PRESIDENT: For the information of those of you who are perhaps new members, and particularly from the eastern states, I wish to state that years ago when the question of establishing a permanent home for the Congress came up, Salt Lake City, through its representation at the Congress, which was held at Portland in that year, offered to the Congress a site situated in the heart of the city, a site which was worth a great many thousands of dollars. In addition to that they prepared and had the authority to state that a great many thousands of dollars would be furnished by the citizens of Utah for the building of a mining temple in Salt Lake City. It was the only proposition which was considered or thought of prior to our meeting, but through the efforts of our worthy Secretary here, and some assistance of a prejudice which was worked up, springing the Mormon question, against Utah, and I want to repeat that right now because that was the only thing by which they defeated us, although it was presented not by Mormons, but by gentiles, and we had the goods to deliver. But the hot air of Colorado finally beat us by a small margin. It has been continued from year to year and simply nothing was said, but we believed that finally Colorado would come through and do as they had agreed, but when they had done nothing up to last year I took them severely to task at the Los Angeles convention, and the resolution offered by Senator Dorsey at that time was adopted almost unanimously. We had no desire to protest against it, but it was simply to stir the Colorado pride so that they would finally do the right thing. Up to the present time, as you have seen from Dr. Buckley's remarks and the report of the committee, they have done nothing. It is my candid belief that unless Colorado comes this year we simply ought to vote to move the permanent home away from that city. They have acted in bad faith and they ought to know it, and the people at large, the people of the whole United States ought to know it. Colorado is a great state and it seldom goes back on its promises, and I for one am sorely disappointed at the mining men and citizens of Colorado not making good their pledges to the American Mining Congress.

DR. J. E. TALMAGE, Utah: I am heartily in accord with what the President just stated, and his way of presenting the situation. A gentleman from Colorado has made the statement that this dereliction is due to apathy or inattention, and suggests that this Congress should assume the burden and responsibility of laboring with the Chamber of Commerce of Denver and try to convert them to some better course of living. I beg to submit that this Congress has nothing to do along that line, that Denver and Colorado worked hard, and I don't care to analyze their method of work, to secure the headquarters for that Congress at the meeting held in Portland in 1906, and they made certain pledges, pledges which I considered at that time to bind the people of Colorado, and if one of those pledges has been kept I don't know of it. I trust the motion will prevail without any express or implied instruction to this Congress to do any missionary work among the people of Denver or of Colorado on this matter.

MR. E. M. DE LAVERGNE, Colorado: I made an effort in the Legislature of Colorado by introducing a bill for an appropriation of \$100,000 as a starter for the erection of a mining building to be owned by this

Congress, and failed because two-thirds of the members of the Legislature were representatives from the agricultural district and had no interest whatever in aiding us in that matter. I finally succeeded in getting a ten thousand dollar appropriation. The mining men did the best they could to work up an interest there, but we had a great many things to contend with and we lost out on that.

SECRETARY CALLBREATH: May I say a word not directly upon this subject, but along the same line? Personally I have no feeling as to where the home of the Mining Congress shall be. I have a very deep interest in the accomplishments of the Mining Congress. The work which we have to do, the results which we are to accomplish are the things which should be kept first in mind, and the home of the Congress should be at that place where its purposes can be best served. I rise to suggest, and beg your indulgence at this time, to suggest an idea which is in my own mind. I believe the American Mining Congress as a National organization, representing the various sections of the country, interesting itself more with the practical, you might say the political side of mining than otherwise, must do the greater part of its work at that point where national legislation is done. In other words, our work must mostly be done at Washington, and that the location of the permanent home of the Congress is a matter of less importance.

If you will pardon me, I would like to explain the newer plan of organization provided for by recent amendments to the by-laws by which the mining men in each state may organize their own state chapter; and that state chapters are authorized to organize local sections in the various communities, each local section having power to do all the things connected with that community. If there is a matter which the local section cannot do it can apply for help to the state organization, and where the issue is interstate or National it shall be passed up to the National organization for its action. I would be most happy if we could some day carry out the dream of those of us who have stood by the Mining Congress, that there should be somewhere a temple of mining under which could be found more information concerning mining throughout the country than at any other point—with a first class mining library, which does not exist today, equipped with all the information upon mining matters and a comprehensive exhibit of the ores from the various sections of commercial size, so that a man from Australia or any other part of the world, who wanted to study American mining conditions could go under that roof and find the information he wanted about Oregon, or Arizona, or Utah, or any other point where precious metal mining is carried on. He should here find not only a comprehensive ore exhibit but geological maps of the district, claim maps showing locations, and the ownership of the property; in short all possible information which can possibly be assembled for the student of mining. It would be a wonderful thing if that dream could be carried out, and I believe some day it will be carried out. I shall be as happy as any one can be if that dream shall locate itself in the city of our President, Mr. Dern. On the other hand, the Mining Congress is growing beyond the precious metal mining industry. We found in our first effort to secure the creation of the Bureau of Mines, that with only 31 congressmen west of the Missouri River, covering the precious metal mining field, less than those from New York state alone, that we did not have much influence at the National capitol. We had to look for other support, and that support has come to us through the coal mining men. It has been loyal, faithful, ardent, active support, and it has done its work.

The American Mining Congress, as precious metal mining men's organization, has been given the credit for securing the adoption of the bill creating a Bureau of Mines. We are entitled to the credit to the extent that we led the fight, but the votes which passed the bill did not come from the precious metal states and they were influenced more by coal producers than they were by precious

metal miners. We have felt that in order to get that influence at Washington, which is necessary to bring about reforms, we must have all the mining fraternity connected with one organization, the coal people helping us and we helping the coal people, and in that way it will be possible to get the things which are essential to the best and highest development of the respective industries. With that idea in mind we are hoping that the present session will see the beginning of an alliance with us in large numbers of the coal operators, to the extent that our members and theirs will all work together under one organization, and thereby secure the best results for every particular branch of the industry. While I believed at the time that the question of the permanent headquarters was up that Denver was the logical and only place for the permanent headquarters, I must confess that the developments since that time have convinced me that possibly I might have been in error, and no matter how this question is settled I hope we shall gain the strength and the active co-operation of the mining men of all branches of the mining industry throughout this land, to the end that the needs of the mining industry, the greater protection of the lives of the miners, the greater conservation of mineral resources, the better development of the mineral resources, and the best and highest things that can come to the Mining Industry shall be brought to us through the earnest efforts and support of all who are engaged in the mining industry. I thank you, gentlemen, for your attention.

Motion carried.

MR. DE LESTRY: I understand this afternoon there is an instruction to the resolutions committee to bring in a resolution in memory of our deceased members, and I would like to move that the Secretary compile a list of those who have gone from our midst, and that a page be set aside in the proceedings on which shall be printed the names, as is generally done in an organization of this kind. I was not here this afternoon, and I do not know whether it is necessary to make a motion in order to have a page set aside.

THE PRESIDENT: If there is no objection to that it is so ordered.

MR. E. T. BENT, Illinois: I don't know whether this is the place to follow a little farther the remark that our Secretary just made about the broadening of this Congress and the bringing about of full co-operation between the metal miners and the coal miners, but there has been an effort made to get the coal miners of Illinois, for instance, to come into the Mining Congress in numbers, and I am convinced that the way to accomplish the objects that have been set forth here in Illinois, at least, would be if your organic law was so changed that coal operators' associations could be affiliated on some agreed basis of financial support. If that were done I believe your present depressed condition of things would be advanced more than if an effort is made to obtain individual memberships. That would be a slow process, but if a plan was carefully worked out to secure the affiliation of existing organizations, that a good deal might be accomplished in a short time. Ascertain what money is needed for the campaign before us, ascertain what money should come from each state, and then have a dual plan by which you still maintain your individual membership, and also take in affiliated organizations of mining men on a proper financial basis.

THE PRESIDENT: I would like to ask the Secretary to state as to whether under our present articles and by-laws such a plan as has just been suggested is feasible.

MR. J. W. DAWSON, West Virginia: Following up the gentleman who has just spoken, the conditions which he described as applying to Illinois, apply equally to West Virginia, and I think it would fit our case very nicely. In talking to Mr. Neil Robinson a few days past, of the advisability of his coming to join this Congress—I will say for the information of those here, that Mr. Neil Robinson is Secretary of the West Virginia Mining Association, and the moving spirit of it—and he made the same suggestion that the gentleman who has just

spoken, that some such plan might work out better than by individual membership.

DR. HENRY M. PAYNE, West Virginia: Right along the same line, at a meeting of the West Virginia Mining Association, and of the Appalachian Engineering Association the proposition was then made that those organizations combine with the American Mining Congress, and at that time it was turned down by those organizations simply because the American Mining Congress constitution at that time did not permit it and I think, as Mr. Dawson has said, that if it is possible for us to consolidate in that way there is no question that almost all these small organizations in the East would be glad to affiliate themselves with the American Mining Congress. As Mr. Callbreath is aware I spent almost one entire summer in West Virginia with Dr. White, state geologist, trying to effect an organization of that kind, and it was impossible simply because at that time the American Mining Congress had not made provision for such consolidation. I believe if it can be brought about, if the plan as suggested can be carried out I believe the coal miners will be very glad to affiliate themselves with us.

SECRETARY CALLBREATH: I think it would be wise if a committee could be appointed to devise a plan which would meet that situation.

MR. CARL SCHOLZ, Illinois: I make such a motion. Without being authorized to speak for the states of Kansas, Missouri, Oklahoma and Arkansas, that very same condition Mr. Dawson referred to exists in the states just mentioned, and I think it might be safe to include Iowa as well, and I make the motion suggested by the Secretary.

DR. TALMAGE: I second the motion. I was about to offer a motion to that effect, understanding from the remarks of the Secretary that the present constitution and by-laws do not specifically provide for such. I would like to add that in some other organizations that plan has been adopted, and it has been found to work with great success, notably the American Association of Musicians. Its membership of course is individual, but it has a specific kind of membership which is reserved for institutions and organizations, and from those institutions and organizations its strength is mainly derived.

MR. BENT: Is that committee to report during this session or to report to the directors, or will this committee on the constitution and by-laws have power to formulate a plan and put it into effect?

MR. DE LESTRY: It seems to me that this committee should report to the members for action. It means a change in our organic law, and that cannot be effected by the council alone. I believe under our constitution it would require a vote of two-thirds of the members present, and the committee should report here. The same situation that exists here existed in the iron countries where the Lake Superior Institution was organized which has been in existence for ten or fifteen years. I am heartily in favor of holding out a welcoming hand to get all these interests together. We have a big fight. Let us fight it shoulder to shoulder. This report should be made here and passed upon by the members. Then the executive council can adopt such regulations as may be necessary to carry out the report.

DR. TALMAGE: I am reminded that thirty days time is required for an amendment. That being the case I think this motion should be amended to meet that requirement, or that it be understood that the committee shall report within say sixty days to the board of directors, and that it shall be the duty of the board of directors to take action promptly.

MR. DE LESTRY: If the motion was so shaped to suspend the rules, this committee could report forthwith to this session.

SECRETARY CALLBREATH: I doubt seriously whether we can suspend the rules or do this in any other form than that permitted by the by-laws which require thirty days for an amendment. It is true the members are represented by proxies appointed to do certain

things, but these members have had no notice of this proposed change. Therefore it seems to me only fair to the members that they have notice of the proposed amendment.

THE PRESIDENT: It seems to me that the consensus of opinion is that the very idea proposed in this motion should be carried through, but it is my judgment that we would better follow strictly, according to our by-laws and articles of incorporation. It entails a little work to the Secretary and to your board of directors, but the question of thirty days does not make any difference and the question of a few dollars in postage and a little additional time for the Secretary should not be considered. I believe it would be almost impossible for that committee, if it is appointed or elected here today, to report tomorrow. I think we would better give them time and submit the matter to the board of directors, and the board of directors can call a special meeting and have the proceedings according to our by-laws. I think that is a safer and better way, and at the very utmost it won't take more than about sixty days to accomplish what we want to do and do it in the proper and the regular way.

DR. HAWORTH: I want to express my agreement with the sentiment we have just heard by our President, and I want to state the reasons why I agree with him. It seems to me that this is a comparatively unusually important meeting at this Congress. Now we have the subject up of our permanent home. We have the subject before us just now in the motion that is pending in a great degree, if I understand, remodeling the question of membership, which is a fundamental question to this organization. I understand that already we have temporarily, so to speak, amended our methods of obtaining members, and the probabilities are that some of our rules and methods are so cumbersome that they should be laid aside. I thoroughly believe that is what ought to be done. I think a committee should be appointed that is representative, composed of able men, and let them go into this matter very deliberately, and at the same time very thoroughly, with the thought in mind of probably getting ourselves on a broader foundation that we have ever been before and on a better foundation. If that is done it necessarily will take a very careful examination of our regulations, and a careful examination of what the most sanguine of us hope will be the outcome within the next few years. A committee would do unusually good work if they could get this matter ready to report inside of sixty or ninety days, and I hope that this motion may be altered somewhat so that it will give them sufficient time to make a report to the directors rather than to this meeting.

MR. SCHOLZ: As the maker of the motion I am glad to consent and include all the suggestions here mentioned as they seem to be very sensible and proper, and with the consent of my second I so alter my motion.

THE PRESIDENT: The Secretary will read the motion as amended.

SECRETARY CALLBREATH: The motion is that a committee shall be appointed under instructions to prepare such an amendment to the constitution and by-laws as will permit the association with the American Mining Congress of mining organizations already in existence under some plan of support which shall be found to be satisfactory, and that that committee be given as much time as they may require to perfect their work.

DR. TALMAGE: Could you not say of mining and allied organizations? We may want to provide for the admission of some commercial organizations that have an interest in mining and are not strictly mining organizations themselves.

THE PRESIDENT: That will be added to it.
Motion carried.

Whereupon an adjournment was taken until 9 o'clock a. m. October 27.

ADJOURNED MEETING OF MEMBERS,

OCTOBER 27, 1911.

9 O'clock A. M.

THE PRESIDENT: We will first listen to the report of the committee which was appointed for the purpose of revising the by-laws to make such amendments as would provide for the affiliation of the coal mining industry organizations or kindred organizations.

Secretary Callbreath then read the report as follows:

To the American Mining Congress:

Your committee appointed to draft an amendment to the By-Laws, providing for the association of mining and kindred organizations with the American Mining Congress, do respectfully recommend that Section 1, of Article 3, be amended to read as follows:

"Any person actively associated with mining, who, after his application has been approved by the Committee on Membership, shall pay an initiation fee of fifteen dollars (\$15.00), shall become an active member of this Congress, and thereafter he shall pay in advance an annual fee of ten dollars (\$10.00), and during the term for which said dues have been paid shall be entitled to all rights and privileges usual to members.

"Any organization devoted to mining or kindred interests may be associated with the American Mining Congress upon any plan which may be agreed upon, and shall be allowed one vote for each ten dollars annually contributed by such organization to the American Mining Congress, such vote or votes to be cast by such person or persons as may be designated by such organization.

"No member shall be permitted to vote, nor to enjoy the privileges of this organization until his dues have been paid for the current year, and all votes shall be cast in person, except as may otherwise be provided."

Your committee further recommends that the Secretary be instructed to call a special meeting of the members of the American Mining Congress for the consideration of an action upon such amendment.

J. W. DAWSON,
E. L. DE LESTRY,
D. MAC VICHIE,
E. T. BENT.

THE PRESIDENT: Gentlemen, what are you going to do with the report of the committee?

MR. CARL SCHOLZ, Illinois: I move the adoption of the report.

DR. J. A. HOLMES, Washington, D. C.: In seconding that motion to adopt the report I would like to say just a word. I hold very strongly to the opinion that we need another class of membership in the American Mining Congress, whether we call them associate members, or something of that kind, by which we can get a large number of people who are interested in mining, but to whom that ten dollars seems a pretty serious barrier and when the time comes for voting on this finally in the meeting to be called, I don't know whether any motion that may be made now can be counted as a part of that program.

SECRETARY CALLBREATH: Any member has the right at any time to submit an amendment.

DR. HOLMES: I have forgotten now whether there was a requirement that the Secretary shall call such a meeting. I don't think there was, but if not it was offered as an amendment to be submitted and it will be received and sent out with the notice.

MR. E. B. KIRBY, Missouri: I rise to ask merely for informa-

tion about this resolution. Is it something that has been framed up carefully enough by the committee or by the officials to act on it?

THE PRESIDENT: It was considered on the floor the other day and the committee was appointed for the purpose of revising the by-laws and this is their report. Before putting the motion I simply desire to make this remark. We have a large representation here by proxies, but the actual members present are not so numerous because they are pretty late coming in. The way the organization is shaping itself and the interest which is manifested by the coal men, I think no doubt the iron men will join us eventually. I think the time is near at hand when we should take occasion, recognizing the interests of the affiliated mining industries of this country, to increase our directorship. I think instead of having the present number we almost ought to have double that number. I believe in large board of directors, for therein lies great strength. A man being elected a director naturally considers that he is then responsible for the Congress personally, and he will work in his own community for the success of the Congress. If we had a large representation here in person I would be almost inclined to suggest that even at this time we should embody in this report or perhaps make another report to amend our articles so as to provide a large directorate. I simply make that as a suggestion at this time.

MR. E. L. DE LESTRY, Minnesota: The proposition just mentioned by the President of this association was carefully threshed out by your committee; as we are now organized, and here represented, we are still the original American Mining Congress as it was started by the metal mining states of the West. We have not a very large number of coal members, and I don't believe at this time in surrendering the idea upon which this organization was founded merely at the beck and call of people not yet identified with us. This association spent its time and talent and money and energy to secure the Bureau of Mines, and after we have done the work the coal interests have gotten the good of it, and the metal miners had not had a look in at the Bureau of Mines. I believe along the lines of this amendment, and if it is worth having, gentlemen, it is worth paying for on their and our part. An association here in the state of Illinois of some 200 coal operators could not under any other process pay for one membership and get 200 votes on any proposal that we may make up, and if we gave an association membership on the payment of one fee we would defeat our own purposes. Let us open the doors not only to coal men, but to quarry men, and to the iron people of my state, who organized the Lake Superior Institute. Let them come in and be elected to membership in the Mining Congress, and pay dues and cast votes according to the payments that are made, the same as we do. I feel this way about it: If it is going to be such great benefit to an organized body in any other industry along this line, isn't it worth while for the individual members to become members of this Congress? There is not a man living who is actively engaged and interested in mining who can't pay \$10 a year to have his interests protected. I think the matter that the President mentioned about increasing the directorate should be taken up at the next session after we have seen the results of this amendment and when it is really a necessity, when that membership has been secured and their interests become as paramount here as ours. I don't believe in tearing down the act of our organization at this time until we know at least whether the opening of the doors will bring the people to us.

THE PRESIDENT: Understand I am not urging that, but I say the time is coming. I simply mentioned that as a matter of consideration, believing that it would be a proper thing after we were once thoroughly organized on the lines which are now being laid.

MR. E. T. BENT, Illinois: As a member of the committee and speaking for the coal men, speaking for the few new members, I wish to say it is not the desire of the coal men that they be given representation beyond the extent to which they contribute to the maintenance of this

work. Furthermore, we desire as much as the last speaker that coal men become individual members of this Congress. I am here as a member of the Congress, and I would say in Illinois and other coal states members of our organizations cannot do anything that will accomplish more than the \$10 spent for fees in this Congress. You alone are powerless to influence public opinion sufficiently to influence Congress, and we alone can't do it, but unitedly we can help you and help ourselves. Let us gain the support of these organizations as well. The resolution goes as far as the coal men ask (applause).

MR. SCHOLZ: Mr. Bent has already expressed what I intended to say. I only want to add one more point, and that is from his expression it would seem our interests could possibly conflict. I want to point out the fact that whether we mine coal, clay, silver, gold, iron, or copper, the intention of the Congress is directed in only one channel, and that is for the benefit of all, and there should be no distinction between metal mining and coal mining. We have so many common interests that we should lose sight of individual interest, and work for the common good.

MR. S. A. TAYLOR, Pennsylvania: I just want to call attention to one thing, lest it might be misunderstood. My friend, the first speaker, made the statement that the Mining Congress had secured the Bureau of Mines. I am sure there is no person in this room, no person among the coal men, nor any other person in any other department of mining that would detract one iota from the honor and part which is due the metal men in securing the Bureau of Mines. Lest there should be a misapprehension of the facts from the statement I would like to state this, and I believe it will be borne out by every other person who had anything to do with the getting of the Bureau of Mines established in Congress, and I am sure my friend, the chairman of the mining committee, will bear me out in this fact that whenever any institution which is devoted entirely to one branch of mining appears before Congress to establish their views and asks for legislation, it immediately becomes a matter of selfishness, or rather appears as a matter of selfishness. I think one of the things probably more than anything else that induced Congress to establish the Bureau of Mines was the fact that all branches of mining importuned Congress for the establishment of that Bureau. It is true the American Mining Congress led that fight, and through the excellent service of the Secretary, who was on the firing line all the time, was enabled to keep the other branches of mining in close touch with what was going on. Practically every branch of mining was present, and I believe it was the united effort of all those branches more than any one thing that brought about the final result. Now the point I wish to make is this, if we hope to establish anything that is good for the entire country it must come through some national work, such as the American Mining Congress; it can't be secured through the coal operators' association, it can't be secured through the zinc operators' association, it can't be secured through the iron operators' association because the moment those individual associations appear before Congress it at once gives out the impression, that it is a selfish interest that is asking for these things. I believe that the moment any one branch of mining undertakes to run away with the Mining Congress, that the Mining Congress is doomed. Its work for the future should represent the interests of the entire mining world in all aspects, and the various associations must work in harmony in the mining congress. For that reason I believe this motion should carry. I have little fear of any branch of mining attempting to run away and control absolutely the Mining Congress.

Upon the motion being put it was unanimously carried.

THE PRESIDENT: Is the nominating committee ready to report?

DR. ERASMUS HAWORTH, Kansas: Mr. President, the committee appointed to nominate directors to be elected at this meeting find that they should report seven nominations, one for a period of one year, one

for a period of two years, and five for a period of three years. We beg to submit the following report: For the one year term we nominate Mr. John Dern, our present President, and before I go on to the others I want to make just a word of explanation regarding this particular nomination. Mr. Dern got word to us in some way that he thought he had served about long enough and asked that we should not renominate him. No sooner had that information leaked out amongst the members of the Congress than we were besieged on all hands with the urgent request that we insist on Mr. Dern serving. I had two sessions with the gentleman before he would permit his name to be mentioned, and I don't know how many other sessions other gentlemen had. He finally said, "If you really think I ought to say yes, I don't want to be contrary, and you may put me on for one year." Otherwise, we would have put him on for three years. For the two-year term, the committee begs to nominate Mr. A. G. Brownlee, of Colorado, who at the present time in a director, I believe. For the three-year term we nominated Mr. Samuel A. Taylor, of Pennsylvania; Mr. Carl Scholz, of Illinois, and Mr. John Mayer, of Missouri; Dr. James Douglas, of New York, and Mr. H. N. Taylor, of Illinois.

THE PRESIDENT: Gentlemen, you have heard the report of the committee. What is your pleasure?

MR. E. L. MARTIN, Georgia: I move you, Mr. President, that the Secretary cast the ballot of the association.

THE PRESIDENT: It has been moved that the Secretary be instructed to cast the unanimous ballot of all the members present in person or by proxy for the election of those nominated by the committee.

SECRETARY CALLBREATH: In accordance with your instruction, Mr. President, I have cast the ballot of the members present in person and by proxy for directors, as follows: One year, John Dern, Utah; two years, A. G. Brownlee, Colorado; three years, Samuel A. Taylor, Pennsylvania; Carl Scholz, Illinois; John Mayer, Missouri; Dr. James Douglas, New York, and H. N. Taylor, Illinois.

THE PRESIDENT: Gentlemen, by casting that vote you have elected the directors for the terms specified as announced by the Secretary.

SECRETARY CALLBREATH: May I say a word with reference to the suggestion which the President made concerning an increase of the board of directors, simply to indicate what would be necessary in case that should be decided upon. Under the corporation laws of the state of Colorado, which are not altogether clear, there is supposed to be a limitation of thirteen on the possible number of directors which an organization can have, and that has been passed upon by some prominent lawyers there as being the law, a position in which I personally do not agree and which has not been generally followed in some of the charitable institutions which have any number of directors that they see fit. But that is the situation with reference to the law of Colorado and it would probably be better to avoid any question of that kind; in case you should increase the board of directors we could surrender the charter and reincorporate in some other state in which there was no such limitation. That of course would be a question to be worked out whenever it is decided that it is wise to increase the board of directors, which seems to be likely soon.

MR. JOHN MAYER, Missouri: As I understood the resolution it said that these different associations would be admitted on a plan to be agreed upon. When do I understand that agreed plan is to be decided? I only want the information to report to the Southwestern Coal Operations' Associations.

SECRETARY CALLBREATH: That will be taken up by the Board of Directors of the Mining Congress as now constituted for decision.

THE PRESIDENT: If there is nothing further I will entertain a motion to adjourn the members' meeting.

MR. SCHOLZ: Is this the final adjournment?

THE PRESIDENT: It is of the meeting of the members.

MR. SCHOLZ: For what time?

THE PRESIDENT: Until the next annual session.

MR. S. A. TAYLOR: I move that we adjourn.

THE PRESIDENT: It has been moved and second that we now adjourn sine die.

MR. J. M. DINWIDDIE, Iowa: This Congress is made up of sort of a double header. It does not seem to me the proper thing for the members to take certain action to adjourn before the final meeting of the members and delegates. This adjournment puts us out of position to take up any question that might be put before us. Could we not adjourn at the call of the Chair so that we can have that chance to bring before us such things as may be necessary? I don't know how else it can be arranged if you are going to give the delegates any benefit at all.

THE PRESIDENT: For the information of the gentleman I will say this has been the practice that anything which might come up requiring consideration will be referred to the board of directors for their action.

Whereupon the meeting adjourned sine die.



REPORTS OF COMMITTEES

Report of Committee on Workmen's Compensation.

To the American Mining Congress.

Gentlemen: The undersigned committee, to which was delegated the work of considering and recommending the form of a law, providing compensation for accidents occurring in connection with the coal mining industry of the various States, respectfully submit the following tentative measure:

From available statistics of tonnage and accidents, fatal and otherwise, your committee feels satisfied that the revenues from the levy of 1 cent per ton, on all coal mined for commercial purposes, will be ample to meet all the requirements of the proposed act. The fundamental principle upon which the suggested legislation is founded—and one that must appeal to all fair minded men—is that the industry, instead of the individual, is responsible for the accidents which in a measure it creates, and that reasonable financial provision should be made for the unfortunate injured and those dependent upon them, and that whatever amount the law requires to be distributed should go directly and immediately to those most in need of it and best entitled to receive it.

The elimination of the question of negligence, as legally defined, would operate in the adjudication of such claims to discourage and prohibit the present wasteful system of litigation, and would therefore avoid the loss of time and money incidental thereto. It is furthermore a recognition of the tragic fact that under the complicated conditions of modern industry, despite every care and caution, accidents will occur, and that such unavoidable occurrences should, as far as possible, be anticipated, provided for, and included as one of the important and necessary elements of cost in the general conduct of industry.

In order that the coal producing States that compete directly with each other may not be handicapped on account of such legislation, we respectfully recommend the immediate appointment of a joint committee, comprising two mine operators and two mine workers, to cooperate with the members of this committee representing such States, to urge upon the respective legislatures the enactment of the bill attached hereto, to take effect as nearly as possible at the same time between such competitive States, with such changes as the form of administration in each State may require.

Very respectfully yours,

JOHN H. JONES,
DAVID ROSS,
W. R. WOODFORD,
J. W. DAWSON,

Committee.

AN ACT

To provide indemnity for disabilities caused by accidental injuries arising out of and in the course of employment in or about any coal mine, coal washer, or coal tippie within this State (or Commonwealth), to provide a pension for aged mine workers, and to provide a fund for such purposes by the levy and collection of a special tax upon all coal produced in this State (or Commonwealth); extending and defining the duties of the State Auditor

(or other designated authority) and State Treasurer, and fixing the penalties for the violation of the provisions of this Act.

Be it enacted by the General Assembly of the State (or Commonwealth) of

Section 1. The Board of County Commissioners (or the legal taxing authority) of each County in this State (or Commonwealth) is hereby required at the time of making the annual levy of State and County taxes to levy a special tax of one cent per ton on the tonnage of all coal mined and shipped or sold locally in such County; such tax shall be paid to the Auditor (or other designated authority) of the State (or Commonwealth) of _____ quarterly on or before the twenty-fifth days of January, April, July, and October of each year upon all coal mined in such County as aforesaid during the three months immediately preceding the month in which such payment shall be made, said moneys to be placed in a special fund as hereinafter provided.

Sec. 2. The agent, manager, foreman or accountant of any corporation, partnership, association, person or persons engaged in mining coal in the State (or Commonwealth) of _____ shall, on or before the twenty-fifth days of January, April, July, and October of each year, make report to the State Auditor (or other designated authority) as to the amount of coal mined as aforesaid during the previous three calendar months and subject to the tax of one cent per ton; such report shall be verified by affidavit, and shall be accompanied by a certified check in full for the amount of the tax provided in Section 1 of this Act.

Sec. 3. It is hereby made the duty of the State Auditor (or such State officer or department as may be designated or such other agency as may be created) to receive all moneys provided for in this Act and to make proper acknowledgment of the receipt of such moneys to the person making such remittance. The Auditor (or other agency) shall pay all moneys so received by him to the State Treasurer, who shall keep such sums in safe custody in a separate fund to be known as the Employers' Accident Indemnity Fund. The State Treasurer shall invest the surplus of said fund as other State funds are invested, and all interest accruing from such investments shall be accredited to and paid into said fund. The bonds of the State Treasurer shall be liable for such funds, and it shall be the duty of the State Treasurer to pay out such fund only upon the warrant of the State Auditor and to keep accurate accounts of the receipts and disbursements of such money.

Sec. 4. All workmen, laborers, and employes in and around any coal mines or in and around any coal washers in which coal is treated, or in and around any river tipple handling coal within the State (or Commonwealth) of _____ shall be entitled to receive indemnity for all injuries caused by accidents arising out of and in the course of his employment in and about any such mine, coal washer, or coal tipple, and a monthly benefit during disability occasioned by old age, upon the basis hereinafter set forth, it being intended that the average wage of any workman hereinafter referred to or made the basis of compensation shall be the average monthly wages received by him during a period of five years immediately preceding such accident, in no case, however, to exceed the sum of \$70 for each month, and in case his employment in his then position has not extended over the entire period referred to, then the average wage paid to other workmen performing similar duties during the whole of said period. Such monthly benefit, however, shall in no case be more than \$35 or less than \$25.

First. In the event that such accident results within thirty (30) days thereafter in the death of such workman, his legal representatives shall be entitled to receive from said indemnity fund compensation upon the following basis: The legal representatives of each single man or married man not living with or supporting his family shall receive from said fund the sum of five hundred (\$500) dollars. The legal representatives

of each head of a family living with or supporting such family shall receive from said fund the sum of five hundred (\$500) dollars, and in addition thereto a monthly benefit for and during the term of three years, following said accident, a sum equal to fifty per cent of such workman's average wages plus ten per cent of such average wages for each child under sixteen years of age at the time such benefits are payable and ten per cent of such wages additional for five or more years of continuous service with his then employer, in any case such monthly payments however shall not exceed the average wage of such employe nor the total sum of three thousand (\$3,000) dollars.

Second. In the event that such injuries shall incapacitate such workman from the pursuance of his usual work he shall, during the period of such incapacity, receive from such fund a monthly benefit equal to one-half of the amount of his average monthly wages during the preceding year plus ten per cent of such wages for each child under sixteen at the time such benefits are payable and ten per cent of such wages for five or more years of continuous service with his then employer, such benefits, however, not to exceed the total sum of two thousand (\$2,000) dollars; provided, however, that if death shall result from said injury within one year from the date of said accident, the legal representatives of such workman shall receive from such fund compensation upon the basis provided in paragraph one hereof, less such sums as may have been theretofore paid such workman under the provision of this paragraph.

Third. It is further provided that the following injuries shall entitle the workman, in lieu of other benefits at his option, to compensation on the following basis:

- (A) For the loss of one hand, twelve months wages.
- (B) For the loss of one arm, eighteen months wages.
- (C) For the loss of one foot, nine months wages.
- (D) For the loss of one leg, twelve months wages.
- (E) For the loss of one eye, six months wages.

And in case of the loss of both hands or both arms or both feet or both legs or both eyes, he shall be entitled to a sum equal to his average wages for a period of four years, not, however, in any case to exceed the sum of three thousand (\$3,000) dollars.

Fourth. In the event that any workman who has been employed for a period of 25 years in the coal mining industry, the last ten years of which he shall have been so employed within the State (or Commonwealth) of shall have reached the age of 65 years and shall become unable to perform his usual labor or labor of any sort about any mine, washer, or tippel by reason of old age, he shall thereafter be entitled to receive from said fund a sum equal to 50 per cent of his average monthly wages during the preceding ten years.

Fifth. In determining the amount of the monthly benefits to be paid under the provisions of this Act, regard shall be had to the difference between the amount of the average monthly wages of the applicant before the disability and the average amount such workman is able to earn after the beginning of the disability on account of which such benefits are paid; and in case such workman shall be able to perform some sort of labor the amount of wages thus received for partial service shall be deducted from the average wages upon which his benefits would otherwise be computed, and he shall receive upon such difference the percentages to which he would be entitled to receive in case of total disability.

Any workman who is entitled to benefits under this Act or the personal representatives of any workman who shall have been killed by such accident shall file with the State Auditor (or any other agency authorized to administer the fund) proof of such claim upon such form as shall be required by the said State Auditor (or other agency), such proof to be sworn to by such applicant and by three disinterested persons, one of whom shall be a practicing physician, and each of whom shall be familiar with the facts, and who shall separately certify under

oath their belief as to the right of said applicant to receive the benefits applied for under the provisions of the Act. It shall be the duty of the mine superintendent of any mine at which an accident shall occur, and of the mining inspector of the district in which such mine is located, to make a joint report to the State Auditor (or other designated authority) of the facts surrounding such accident, and of all facts of importance in passing upon the validity of the claim or claims upon said indemnity fund growing out of said accident.

Sixth. The State Auditor, when proper proof has been made of the justice of any such claims, shall draw his warrant payable to such beneficiary upon the filing with him, in the event of death, the acknowledgment of the legal representative of such workman that the money so received is in full satisfaction of all claim or claims which said applicant personally or as such representative may have on account of damage arising from the injury for which such indemnity is paid; and in case of disability the acknowledgment of such beneficiary that the money so received is in full settlement of all claims which such beneficiary may have on account of such injury for the time for which such benefit is paid.

Sec. 5. The provision made for indemnity of employes under this Act is and shall be construed as being in lieu of and in satisfaction of all claims for indemnity against any employer by any employe by reason of any injury received in the course of his employment, and the acceptance of any benefit under the provisions of this Act by any person or persons shall constitute a bar against any action brought by any such person against his said employer on account of any such accidental injury.

Sec. 6. The institution of any suit in law or equity by any employe against his employer for damages on account of personal injuries received in the course of his employment as aforesaid, shall constitute a forfeiture of said employe's right to receive indemnity from the fund herein provided for and the amount to which said employe would in the absence of such suit be entitled to receive from such fund, and in addition thereto his proper court costs expended in defending such suit shall be paid by the State Auditor (or other agency authorized to administer the fund) to said defendant employer upon the termination of which to reimburse him to that extent for the judgment and costs for which he may become liable in any such suit; the total amount of such payment, however, shall not exceed the sum of five thousand (\$5,000) dollars.

Sec. 7. In the event that the State Auditor (or other agency authorized to administer the fund) is not satisfied as to the justice of any claim made for indemnity from said fund, he is authorized to require such additional proof as in his judgment is necessary to fairly establish the rightfulness of the claim so made. If any workman applying for benefits under this act refuses to submit himself to any required examination or in any way obstructs the same, his right to compensation under this Act shall be suspended until such examination shall take place and shall absolutely cease unless he submits himself to such examination within one month after being requested to do so.

Sec. 8. There is hereby created an Advisory Board to consist of three members to be appointed by the Governor, by and with the advice and consent of the Senate, one of whom shall be a representative coal operator and one a representative coal miner, the members of such board to be appointed for three years, and to receive a compensation of five dollars per diem, together with their necessary traveling and hotel expenses, for the time necessarily engaged in performing the said duties. Such Advisory Board shall have general control and supervision of the administration and execution of the provisions of this Act, shall hear and determine all disputes arising between the State Auditor (or designated agency) and claimants for indemnity hereunder, and shall make annual report to the Governor of the condition,

operation and affairs of such fund at such time as may be designated by the Governor. It is hereby made the duty of the Auditor (or designated agency) and Treasurer to make report to said Advisory Board at all reasonable times on demand of the condition and affairs of such fund and of all acts by them performed under the provision of this Act.

Sec. 9. Should the proceeds of the special tax herein provided by this Act at the end of three years after the going into effect of this Act be found to be in excess of the amount necessary to pay the indemnity provided for in this Act, the State Auditor is hereby authorized to change the amount of the levy herein provided for and the Board of County Commissioners of each county in the Commonwealth, upon being notified in writing of such change, shall thereafter be authorized and required to make levy of the amount of tax so specified by said Auditor (or other designated authority) as being sufficient to pay the indemnity provided for in this Act, and the rates so fixed by said Auditor (or designated authority) shall be annually levied as ordered by said Auditor, which levy shall in no case exceed the amount provided in Section 1 of this Act.

Sec. 10. It shall not be lawful for any attorney or agent of any workman or the legal representative of any deceased workman entitled to indemnity under the provisions of this Act to receive as a fee for his services in connection with securing the payment of such indemnity a sum in excess of five per cent (5%) of the amount collected, and in no case to exceed \$25 for all services rendered in connection with the payment of indemnity for any one accidental injury.

Sec. 11. Any manager, agent, foreman, accountant, person or persons who represent any corporation, partnership, association, person or persons engaged in the mining or management of any coal mines or coal washers in the State (or Commonwealth) of, or any person or persons liable for the payments herein provided for who shall violate the intent of this Act by inaccurate reports of tonnage of coal produced by them, or who in any manner hinders or obstructs the Auditor of State in ascertaining facts bearing up any case provided for in this Act, or who may refuse correctly to make out such reports as are required by this Act, or as requested by the Auditor of State, or submit to its provisions, when liable therefor, and any person who shall knowingly and willfully assist an applicant in a fraudulent attempt to obtain benefits hereunder, shall be guilty of a misdemeanor and shall be fined for each offense the sum of not less than \$100 nor more than \$500 and be imprisoned in the county jail for a period of not less than one month nor more than six months, or by both fine and imprisonment. The proceeds of all fines collected under the provisions of this Act shall be forwarded to the State Treasurer and by him accredited to the Employers' Accident Indemnity Fund.

Sec. 12. No indemnity or benefit shall under the provisions of this Act be due or payable where the disability is due to the willful carelessness or gross misconduct of the employe, or unless such disability shall continue for more than seven days, and every claimant is hereby required to give notice of such claim to the State Auditor (or other designated agency) within thirty days after the happenings of such accident.

Sec. 13. All benefits and indemnity provided for by this Act shall be paid only to the beneficiaries or to their legal representatives other than assignees, and no benefits under this Act shall be assignable or subject to attachment or execution or be liable in any way for any debt of any workman on account of whose disability such indemnity is payable.

Sec. 14. The tax herein provided for shall be due and payable upon all coal mined in the State (or Commonwealth) of on and after the first day of October, 1911; the indemnity herein provided shall apply to all accidental injuries occurring after January 1, 1912.

Sec. 15. All expenses of administration of the provisions of this Act shall be a charge against the State and shall be provided for by suitable appropriation by the General Assembly.

Sec. 16. This Act shall be in full force and effect on and after its passage.

Report of the Advisory Committee on Mineral Statistics.

George W. Riter, Salt Lake City, Utah, Chairman.

To the American Mining Congress, Chicago, Ill.

Gentlemen: Your Advisory Committee on Mineral Statistics presents its first progress report after having been in existence as a committee for only part of a year.

The Committee owes its existence to the growing regard for accurate mineral statistics, not only for those dealing with mineral production, but even more for those dealing with economic results. The investing public now demands data covering a wider range than ever before. Moreover, there is a feeling that the attitude of the federal government with reference to the unsold mineral lands of the public domain, and also with reference to a protective tariff on mineral products, will hinge on the more recent economic history of the mineral industry in its various branches.

In discussing the mineral resources of our country, the word "Conservation" is being used with increasing frequency. Whatever meaning be placed on this word, wise legislation can hardly be reached in the absence of an accurate record of the results attained in recent years in the various branches of the mineral industry. Unfortunately, this record is far from complete, and the purpose of this committee is to encourage the completion of the record by those who have the means of doing so. The statistics on gold and silver afford an interesting case in point. Perhaps the best available history of this branch of the mineral industry is to be found in the report of the Special Census of Mines and Quarries for 1902.*

According to this report, the gold and silver mines of the United States (including argentiferous lead mines) taken collectively, do not pay their own way. It appears (Table 1, page 510), that producing mines, 2,992 in number, sold their product for the year for \$18,644,400 above the cost of production, but that non-producing concerns, listed to the number of 3,252, spent \$21,551,358, without getting any returns. The conclusion is that the gold-silver-lead mining industry fell some \$2,906,958 behind for the year. Omitting placer mines from the computation, the deficit is much greater. If the report falls short of the truth, more than likely it does so in not disclosing the whole amount spent on non-producing properties, because mines having no production are more apt to escape making returns. But the trouble with the figures is that they are all lumped together.

Your committee has therefore suggested to the Bureau of the Census that in compiling the returns gathered in 1910 from metal mines, the data be handled so as to make separate tabulations for mines that are profit-paying and for those that are non-profit-paying; also, with special reference to gold, silver and silver-lead mines, that the data be tabulated so as to group the mines according to the nature of their output. The Director of the Census promises to follow this suggestion so far as may be practicable, and announces that every suggestion that is made with a view to making the census reports a source of useful information to practical mining men, will be welcomed by him. We are pleased to report that a similar attitude is assumed by the United States Geological Survey. Indeed, the compilation and publication of

*Special Report of the Census Office. Mines & Quarries, 1902, 1, 123 pages.

statistics of better sort seems to depend entirely on the willingness of producers to keep accurate accounts and to report their data to compiling offices.

At the instance of your committee, acting through members of the Senate Committee on Mines and Mining, the practice of the General Land Office with reference to mineral survey plats has been modified so that all plats will hereafter be duplicated by photographic or printing processes, instead of making each copy long-hand, as was the custom for so many years. The new rule will effect a great saving in time and labor, as well as marked decrease in the charges made against each individual applicant for patent to mineral land.

It is of course impossible for any one committee or set of officials to decide just what statistics ought to be compiled for the various branches of an industry so vast as that of mining. The best the committee can do is to pave the way for closer relations between producers and statisticians, and to impress the idea on every individual producer that suggestions and criticisms will be welcomed by the statistical offices of the federal government, if made in a spirit of helpfulness, and with a view to making the published reports of more practical value.

Report of the Committee on General Revision of the Mineral Land Laws.

E. B. Kirby, St. Louis, Mo., Chairman.

The Committee had assigned to it the work of securing action from the Congress of the United States, upon the request of the American Mining Congress for a general revision of the mineral land laws. By the time the list of committee members had been appointed and had conferred and agreed upon their plans, the winter session of Congress was so near its close, that it was found that no effective action was then possible. During the special summer session there was a general understanding in the House and Senate that no general legislation was to be introduced, and this understanding prevented the consideration of our measure. It was, therefore, decided to undertake it early in the regular session this winter, at which time a joint resolution on the following lines will be introduced through our friends in Congress:

That Committee is instructed to prepare and submit at this session a mode of procedure, whereby Congress may undertake a general revision of the mineral land laws of United States in the way which will best promote the public welfare and meet the peculiar needs of the Mining Industry. The plan recommended should provide a practical means whereby Congress may utilize the best experience and judgment available in the industry and which will give the mining regions of the United States and Alaska ample opportunity for public hearings and the discussion of remedies.

In the meantime, your Committee has taken up the matter with the governors and the United States senators and representatives of the western states and territories affected. It has informed them of the request of the American Mining Congress for a general revision and its reasons therefore, and of the aforesaid joint resolution to be introduced at the next session. The replies show that in this undertaking the American Mining Congress has not only no opposition, but the general approval and support of the public men of western states, while a number of them show a keen personal interest in the matter. It is clear that with the support promised and the non-partisan nature of the measure, that there will be effective action by Congress at the next session.

After Congress has empowered some committee to act, your Committee hopes to have the opportunity of presenting to it, such detailed information and suggestions as may aid in preparing a plan, whether for a Commission or otherwise, which will be satisfactory to Congress and accomplish the ends desired. Your Committee believes

that this may be secured through a wisely selected commission, authorized to draft a revised code for the use of Congress. This commission should hold public hearings in the principal mining centers of the west and Alaska. It should call before it, men prominent for their knowledge of prospecting, of claim locations, of mine operating, mine litigation, and the history of mining laws, and should invite opinions from the public, bearing upon the specific points at issue. The authorities and experience of other mining countries should also be consulted and the recommendations of the commission should be presented in the forms of a fully drafted code.

It is clear that there is a best practical solution for each one of the difficult problems involved in a general revision of the mineral land laws, but in order to determine these best solutions, all opinions must be brought to a focus before some authoritative body which has the power of decision. Moreover, in order to assure the general approval and acceptance of reforms affecting so many varied interests, the personnel of this body should be such as to command confidence and the mining communities should have opportunities to present their views before it. There is a wealth of learning and practical experience in the country, which is available for the work of framing a revised code, but it is distributed among many men and must be focused by the plan indicated.

In order to properly follow up the business now under way, your Committee asks that it be authorized to continue its work during the coming year. A memorandum is attached, explaining the request of the American Mining Congress for revision and the reasons for its actions.

Report of the Committee on Standardization of Electrical Equipment in Metal Mines.

General Irving Hale, Denver, Colo., Chairman.

Your committee on the standardization of electrical equipment in metal mines begs to report that owing to the sudden and severe sickness of its chairman, General Irving Hale, on September 29, the work of this committee was impeded to such an extent that it is impossible for your committee to submit detailed findings herewith.

Yours truly,

H. S. SANDS.
CHARLES A. CHASE.

President's Annual Address.

BY JOHN DERN,
SALT LAKE CITY, UTAH.

As representatives of the mineral industry of the United States, we are assembled in the great enterprising, truly American City of Chicago, in our fourteenth annual session.

It seems to surprise some persons that a mining congress should be held in Chicago, instead of in some so-called mining center. I hope to convince you, before I finish, that the mining industry does not deserve the limitations that many minds impose upon it, but that, on the contrary, its scope is so broad that any community where civilized men dwell together is an appropriate place to hold a mining congress.

But aside from that, our Illinois friends, in view of the statistics that were given us by Mr. David Ross, at Los Angeles, last year would probably resent the insinuation that theirs is not a mining state. Mr. Ross informed us that Illinois ranks third among the twenty-five coal producing states of the Union. He also claimed that his state had mined 733 million tons of coal in the past one hundred years, and that it has 200 billion tons left, which I for one am ready to concede is a large quantity of coal.

For fourteen years the American Mining Congress has been working to educate the general public to the importance of the mining industry, and to teach the men engaged in the various branches of that industry that they have wants and needs, which can best be advanced by organized co-operation. I congratulate the members on the progress that has been made, the prestige that has been acquired, and the results that have been achieved. As one who has been connected with the movement from its inception, I can appreciate the difference between the early meetings and this enthusiastic and representative gathering. Not that there was any lack of enthusiasm at the beginning; not that I would detract from the honor that is due the patient, energetic optimists who did the pioneer work, and kept the Mining Congress alive when its excuses for existence, measured by results, seemed few and weak; but we have grown and have developed into a power. Let us hope that this power will always be used for good.

In the beginning, our chief, almost our sole object was to secure the establishment of a Department of Mines in the National Government—a worthy purpose, and one that has even yet not been fully achieved, although we have been instrumental in causing the first step to be taken. At our annual sessions, this topic was always uppermost in our thoughts, and aside from that we had no very definite policy. Many other subjects were discussed, but we can now see that they were more for the purpose of filling in the time than for the promotion of any sound, logical program. The result was that the American Mining Congress was not taken seriously in many quarters. Prominent mine operators denied the right of this organization to speak for the industry as a whole. Influential journals jeered at our efforts, and derided the personnel of the Congress. Doubtless the criticisms were in the main justified, but the American Mining Congress is not the only thing that has had humble beginnings.

Work Continues Despite Obstacles.

At any rate, in spite of these discouragements and obstacles, the work was kept up, the methods of procedure were improved, and more definite aims were evolved. The idealistic leadership of Judge Richards, who for seven troublous years was president, followed by the efficient administration of Dr. Buckley last year, and always supported by the energy and capacity of our Secretary, Mr. Callbreath, gradually produced an association that justified itself, and won the respect and allegiance of many who had formerly looked at it askance, but who are now among our most valuable members. In the words of Judge Richards, the Mining Congress has "made itself respectable," and it now claims that it truly represents the mining industry of the United States, and that its deliberations deserve the consideration due the combined voice of those who are engaged in mining pursuits under the American flag.

I make this statement confidently, but not boastingly. It is true that our membership is not yet as large as it ought to be, or as it would be if we had induced all classes of mine operators and workers to give us their active support, as they will surely do when they awake to the fact that it is to their own interest to do so. We do not wish to sail under false colors, or claim to be what we are not. We are very desirous of getting the eastern coal miners, and oil miners and iron miners to ally themselves more heartily with the western metal miners, because our interests are mutual

and identical, and in union and co-operation will be found the strength to carry out the great purposes this Congress has in view. We candidly, if regretfully, admit that, as our labor union friends would say, we have many fields yet to organize.

Mining Congress Alone in Field.

Great numbers of men engaged in branches of the mineral industry have not affiliated with the American Mining Congress, and give no thought to its existence. The misfortune is theirs more than ours, and sooner or later they will realize it, and come in and do their share for the common good. But already we claim to speak with the voice of authority, because there is no rival organization that assumes to occupy the same field as we. Societies such as the American Institute of Mining Engineers are technical in their objects and work, which we are not. That is, they are concerned with the scientific problems of practical mining and metallurgy—questions in which we are all vitally interested, but the details of which this Congress does not pretend to make its special field. Such societies, therefore, have our heartiest good-will and admiration, and they have not the slightest reason for failing to co-operate with us, and give us the benefit of their invaluable aid. Nothing would please us better than to have all the members of these societies join the American Mining Congress, so that they may have the opportunity to do their share in advancing the larger, general interests of mining, instead of devoting their energies and talents exclusively to the details of their own specialty. Many of these scientific men we already have with us. We need more of them, and we want all we can get. The American Mining Congress requires the best thought and most advanced ideas that can be had.

But what is meant by "the larger interests of mining," to which I have just alluded? In other words, what are the specific objects of the American Mining Congress? Dr. Buckley said last year that they were "to foster and promote mining in all its various branches," and perhaps they could not be more concisely stated. This statement, however, is so general as to be vague; and yet to particularize would be to set limitations and restrictions that would be hard to define, and that would certainly vary with conditions from time to time. As questions come up, be they political, social, economic or scientific, this Congress will discuss them, so far as they affect or relate to the mining industry. But to give some conception of the activities of the Congress, I might mention a few of the subjects that have received attention, and some that are still before us.

I have already said that the scientific and technological problems of mining are not the ones we aim to discuss. But to encourage work of this nature, so that efficiency may be increased and waste decreased in mining and metallurgical operations, is one of our chief objects. To induce the Government to help the miner as it helps the farmer is one of the things we have constantly striven for, and we expect to keep hammering away at it until we get what we deserve.

Uniform Mining Laws.

To secure the enactment of uniform mining laws in the several states, to the end that mine accidents may be minimized and the health of workers protected, is a subject that has been most carefully investigated by this Congress, and a model law has been prepared, that we believe could well be used as a basis by all states, with such modifications as local conditions might require.

To eliminate the fake promoter and all other sorts of mine frauds is another end we have in view. To work for true conservation, and to aid the government in formulating a fair and just Alaskan policy, are objects to which we are committed. We have had committees to investigate smelter rates, railroad rates, vertical side line law, general revision of mineral land laws, coal tax insurance fund, and the standardization of electrical equipment. It is apparent from this partial list of subjects that our activities have touched both our internal affairs and our external interests. To a few of the subjects that I have mentioned I will presently make more extended reference, but I have merely been trying to show that the American Mining Congress makes it its province to consider any sort of a question that in any way affects the mining industry.

When we speak of the mining industry a good many of us are prone to think only of gold, silver, copper, lead, zinc, coal and iron mines. We should rid ourselves of this narrow conception. The American Mining Congress aspires to stand for the mineral industry in its broadest sense. All of nature's bounties come from the soil, and the products are of two classes, vegetable and mineral. Everything that is not vegetable is mineral, and should be classed in the mineral industry. The scope of mining is greatly increased when we add such other metals as platinum, tin, aluminum, antimony, tungsten, quicksilver, bismuth, nickel, magnesium, manganese, and the gems and precious stones; but it is very much more enlarged when we consider the non-metallic minerals, including petroleum, natural gas, salt, gypsum, lime, cement, asphalt, sand,

gravel, stone, slate, phosphates, rocks, sulphur, asbestos, graphite, mica, pigments, fertilizers, abrasive materials, chemical materials, mineral waters, and the clay products, which embrace the brick and tile industry. These and many more are just as much parts of the mineral industry as are the seven first mentioned metals, and when considered in this proper light, our industry assumes truly majestic proportions.

Broad Aspect of Mining.

The mere mention of this broad aspect of mining ought to be sufficient to silence those superficial critics who insist upon calling mining a species of gambling. It is nothing of the kind. It is, in its every phrase, a legitimate, useful, honorable business, and it forms the basis of many of our greatest enterprises. There are frauds in mining, but so are there in farming. There are fakirs in mining, but so are there in manufacturing. There are crooks in the mining business, but so are there in banking and railroading. And yet, in the minds of many well-meaning and honest people, mining seems to be judged by its parasites and by those who in no way stand for real mining.

I apprehend right here in Chicago, if a banker learns that one of his customers is interested in a mine, he will at once conclude that that customer is a speculator and a gambler, and that his credit must be watched with unusual care. Now, it is needless for us merely to decry this attitude. We know that it exists, and if we are candid we must admit that there is a reason for it. The reason is to be found in the insane mining booms that crop up from time to time, when men let their imaginations run riot, disregard all laws of probability, and make the most absurd representations and promises. That is when the fakir and the fraudulent promoter get in their deadly work. And when the bubble bursts, and things get back into their proper perspective, when the unfortunate dupes have lost their money, they do not realize their own folly in listening to the wily stranger, but they hurl imprecations at mining, as the quintessence of all that is crooked, and rotten and evil. The American Mining Congress can perform no greater service for itself and for the public than to eliminate mining frauds, and to see that the investor in mining securities gets a square deal and a "run for his money."

These frauds are, of course, principally attached to metal mining, and the stigma therefore rests chiefly upon that important industry. I will not go so far as to say that mining is as safe as any other business, but I will say that, when conducted with proper

skill, knowledge and ability, its risks can be so greatly minimized as to make it a relatively safe venture. It cannot be denied that the development of a new mine has a large element of chance. In spite of favorable geological conditions, the outcome is often disappointing. It is impossible to see into the ground, and opinions can only be based upon visible evidence. But the possible returns are so large that investors are willing to take these chances. Those who put their money into a mining scheme with a full knowledge of these conditions seldom complain if failure results, provided they are sure their money has been honestly and intelligently expended. That is what we are endeavoring to bring about, and when we succeed metal mining will move up to its proper place as a conservative, legitimate business.

Alaskan Situation.

The American Mining Congress has for several years taken a special interest in Alaska, and any matter concerning that wonderful but apparently distressed country is sure of our prompt and sympathetic attention. The true status of the situation in Alaska seems to be hard to find out. So many conflicting reports are received that the average citizen finds himself perplexed and in doubt about the facts. One day we hear that the coal deposits of Alaska are fabulously large, and of the finest grade in the world. The next day we are told that the quantity of coal has been grossly overestimated, and that it is not very good coal anyway. From one source comes the information that its bodies of copper ore are the greatest ever discovered, and from another source we learn that these mines are vastly overrated, and that they cannot compete with the mines of the States. First we are startled by a tremendous scandal about certain private interests grabbing and monopolizing the great harbor of Controller Bay, and then we get sets of resolutions from the city council and chamber of commerce of the city of Cordova, stoutly maintaining that Controller Bay is no harbor at all, and that Cordova Bay is the only feasible water outlet. On the one hand we are solemnly assured that the people of Alaska fervently desire home rule, and the next returning traveler reports that he was unable to find any real sentiment of that kind.

These conflicting statements are very disconcerting to the man who is trying to keep himself in a judicial frame of mind, so as to judge fairly and avoid prejudice. What we seem to need more than anything else is accurate, reliable, unbiased information. What can we do until we get the facts? I am convinced that the people of the United States, through their government, will do substan-

tial justice to their countrymen in Alaska, just as soon as they have indisputable data about conditions as they actually exist. A very appropriate step would appear to be the appointment of a special congressional committee, or some sort of a governmental commission, composed of disinterested men of distinguished ability and unquestioned probity, to make a thorough investigation of Alaskan conditions. The mission of these men should not be to bolster up the pet views of any one man or set of men, but they should go for the sole purpose of gathering information, so that the government of the United States can act intelligently and in the light of actual facts, instead of floundering about in the dark and reasoning from doubtful premises.

This suggestion may possibly cause our Alaskan friends to groan, because it seems to portend further delay in the adjustment of their troubles. It is quite conceivable that the opposite would be the result. Certainly very little progress is now being made in the settlement of the vexed problems, and it is not apparent that a speedy and satisfactory solution is in sight. If the proposed commission would work diligently, and not protract its hearings unnecessarily, its report might be expected within a reasonable time, and if that report commanded the confidence of Congress, its suggestions for the relief of Alaska might quickly be enacted into law. And anyway, better a little delay and settle the question right, than to act blindly and make mistakes.

Population Increases 764 in Ten Years.

That there is something wrong in Alaska seems beyond doubt. When a body of patriotic citizens, emulating the illustrious Revolutionary tea destroyers of Boston, organize a Cordova coal party, it is obvious that they have a grievance. When we hear it said and repeated that Alaskans look with envious eyes upon the kind of government that is enjoyed by their Canadian neighbors, just across the line, and complain bitterly that their own government is treating them unjustly and unfairly, and is loading them with unreasonable burdens and restrictions, it is a burning shame that we do not at least find out whether their grievances are real or fancied. When the population of that wonderful northern empire increased only 764 in the ten years from 1900 to 1910, it looks upon the face of it as if its development were being retarded, whereas, it should by all means be encouraged.

The American Mining Congress last year adopted a most excellent report of its committee on Alaskan mining laws. That report contained a number of observations and recommendations

that seem to be eminently sensible and fair. We believe that those suggestions could be advantageously heeded by those whose business it is to legislate for the territory, and by those whose business it is to administer the laws.

In addition to what our organization has already attempted to do for Alaska, we stand ready to help in any way that lies within our power. We are fully in accord with the policy of preventing the resources of that vast territory from falling into monopolistic control, but we cannot understand why fear of that danger should so blight activity that progress and development are at a standstill. Are our statesmen not resourceful enough to devise measures that will permit development and yet prevent monopoly? I think they are; but they want the information that is requisite to intelligent action. What is needed is a more thorough understanding of the situation.

Conservation a Live Issue.

At our session in Los Angeles, last year, the subject most discussed was the conservation of our natural resources. This should not be considered as a fad, but as a live issue, and one that justifies the interest it has awakened. I suppose it would be hard to find a man who would not avow himself a conservationist, although he might reserve the right to decide for himself what conservation should properly mean. The ordinary conception of the conservation policy that has been recently developed in this country makes it mean the protection of forests, the prevention of a water power monopoly, and the leasing of coal and oil lands. These are important topics, especially to us, since they all have a direct effect upon the mining industry.

I think I voice the sentiment of mining men generally when I say we give our unqualified and unstinted approval to any well-directed efforts to prevent forest fires, to lessen the waste of our timber resources, and to avoid the damage that may result from injudicious deforestation. There can be no sound objection to a rational forestry policy, and the argument is all in its favor. We do not believe, however, that it is necessary to administer this policy in such a way as to hamper or interfere with legitimate mining operations. A just forestry policy must not impose burdens upon mining, but must recognize the rights and needs of that industry, and co-operate in its advancement, instead of placing obstacles in its path. Mining, likewise, should refrain from ruthless, careless and wasteful destruction of timber, and should willingly comply with the necessary regulations prescribed by the forest service. In

short, there should be sympathy, not antagonism, between the two.

I also believe I speak for the large majority of the Western mining men when I say that, notwithstanding many strong points in its favor, we are not impressed with the wisdom of a plan to lease coal and oil lands. We believe that the rapid and systematic development of this class of lands can best be brought about by continuing the system that now prevails, and under which practically our entire mineral development has taken place. We also believe that many of the abuses that have been brought to light, such as dummy entries of coal lands, are directly traceable to a lax enforcement of the law.

Revision of Mineral Land Laws.

There is little doubt that if a leasing system were adopted, it would not stop at coal and oil lands, but would expand to all mineral lands. Most of us recognize that our mineral land laws are imperfect in some details, and the American Mining Congress has a committee that is trying to work out a plan for a general revision of those laws. We know that the present system permits wrongs and abuses which call for better regulation, but we believe these can be corrected without upsetting the entire present policy and entering upon a wholly new path. The prevention of monopolies that will have the power of extorting unreasonable prices from the consumer is sound policy, which we all approve. That it is impossible to prevent such monopolies under the present system is absurd, and that the leasing system will automatically prevent them is doubtful. That the mineral land policy of the United States, under which the prospector is guaranteed the full benefit of his discoveries, has been a horrible mistake we flatly deny. On the contrary, we maintain that it has been a beneficent policy, and that it has been the chief factor in winning the western half of this continent in settlement and civilization.

It is true that great fortunes have been made out of mining, but they are exceptional; and it is these exceptions that furnish the incentive to the prospector to brave the wilds and hardships of the remote places of the earth, in search of the treasure that is to be his own when he finds it, and that will make him another of the exceptions. Even under the present liberal law, very, very few are so lucky as to have their dreams come true. Would the prospector be equally bold and venturesome if he knew that he could get nothing but a lease on his discoveries? Would not the fear that a capricious readjustment of royalties might rob him of the greater portion of his profits be strong enough to deter him from going

ahead as he would if he knew that everything he might find would be absolutely his own? To a man who has been close to the game, it looks as if this would be the result. It seems to me that the question of getting a revenue out of the mineral lands is of decidedly minor importance.

The most far-reaching and valuable result of the pioneer prospector's work is in opening up and developing tracts of the public domain that would otherwise remain untouched. The winning of these wild places to settlement and civilization extends our agricultural area and widens our markets. This is of such vast benefit to the whole country and to all the people that it is idle to say the nation has wasted its resources because it has given the discoverer title to his discovery. It would be just as logical to condemn the homestead law, which is universally conceded to be the wisest policy this country ever adopted. There is no difference; the same principle underlies our mineral land system and our agricultural land system. We believe it is a wise principle, and we believe it would be a step backward instead of forward to abrogate the beneficent policy that has been the chief factor in developing the country, especially the west.

Furthermore, the seeking out of nature's bounties and bringing them forth for man's use is incomparably more important, and more beneficial to all the people, than the mere collection of a tribute for the benefit of the general government.

Safeguarding Water Powers.

What to do with our water powers is a question that is not easily answered. It is alleged that there is in existence or in prospect a monopoly that aims to control the water powers of the country. If this assertion has any basis in fact, it deserves the most careful attention. One of the country's greatest natural assets is its water powers, and these should be looked after, so as to get the greatest good for the greatest number. Certainly, the most important thing is not to make these water powers a source of revenue to the government, but to safeguard the public interest by providing that power can be obtained by those who need it at the lowest possible rates. Give our people the benefit of cheap power, and they will have an enormous commercial advantage over other nations less favored by nature. It must be remembered, however, that it takes capital, and lots of it, to develop these water power projects, and if we are going to have the power that is now going to waste harnessed up and made to serve us, we must encourage capital to do so by permitting it to make a reasonable profit. It

seems to me that a water power is a public utility, just as much as a railroad is, and instead of being treated strictly as private property, it should be controlled by state laws, as other public utilities are controlled. A water power located in Oregon is of no use to the people of Maine or Florida, so why should they prescribe the regulations? It sounds like good sense and good ethics to turn the water powers over to the states in which they are situated.

I have briefly adverted to these well-known features of the conservation question. Whether the view I have expressed be accepted or not, I want to add that these matters are, after all, of relatively small importance. There is a broader conservation that applies with particular force to the mineral industry. Conservation means saving, and saving means the elimination of waste. The waste in mining is something frightful and, unlike the waste in forestry, it cannot be replaced or restored.

Waste in Coal Mining.

I have heard it claimed that in coal mining fifty per cent of the coal is left in the mines, and therefore wasted. Manifestly, the reason is that it does not pay to mine cleaner, and so the waste goes on. The value of the coal production of the United States in 1909 was \$555,000,000. According to this, we are wasting over half a billion dollars' worth of coal every year. I submit that here is a field for conservation that makes our ordinary ideas of the subject dwindle into insignificance. But the loss does not end here. To convert coal into power, by means of boilers and engines, is notoriously wasteful. Engineers tell us that engines only deliver from five to ten per cent of the energy that is contained in the coal. Think of the benefit that would accrue to mankind from a conservation that would reverse the figures, and enable us to use ninety-five per cent and lose five, instead of using five per cent and losing ninety-five!

Similar examples can be cited from other branches of mining—gold, silver, copper, lead, zinc. In many mines large quantities of ore are lost through lack of skill in extracting it. In others, immense tonnages are left standing because the ore is too low grade to be profitably worked by the methods in use. Conservation here means the development of improved mining and reduction methods, and the dissemination of knowledge so that efficient methods will be used.

After the ore is mined, there comes the metallurgical loss, which is often greater than the mining loss. At the great gold mines of the famous Mother Lode, in California, the average re-

covery probably is not above eighty per cent of the assay value of the ore. It would cost more to get the other twenty per cent than it is worth, so it is thrown away. Some of our greatest copper mines, which have plants that are pointed out as marvels of human skill and ingenuity, do not save over seventy per cent of their mineral, sometimes because no better work can be done by concentration, and sometimes because they can make bigger dividends by crowding through big tonnages with an indifferent extraction, than by treating a smaller tonnage and getting the maximum possible extraction.

In lead and zinc concentrators the same terrific losses are constantly recurring. When a miner ships a car of ore to a smelter, if the assay shows that the ore contains zinc, not only does the smelter refuse to pay for the zinc, but it charges the miner a penalty because it is present. These things cause no comment, since it is the best that can be done by known processes.

Metallurgical Knowledge Small.

Viewed in its largest aspect, it must be admitted that we need not be conceited about our metallurgical knowledge. Doubtless, in times to come, the crudity of our present day methods will be marveled at, after our wastefulness has forced future generations to evolve a real conservation, to stop these losses, and has taught mankind that, although our Mother Earth is prodigal with her gifts, yet they are not inexhaustible, and are not to be thrown away, but are blessings to be appreciated. Is this all idle talk, visionary, impractical dreaming? In this day of wireless telegraphy and flying machines, who will dare stand up and say anything is impossible? I have merely pointed out that, rapid and wonderful as our progress has been, we have hardly made a start. In the bright lexicon of mining science there should be no such word as complacency, because the possibilities—and not only the possibilities but the needs—of the future generations have no limits. Here is a policy of conservation that spells the advancement of the human race, and about that there can be no disagreement.

Progress is always gradual, and generally slow. It is not to be expected that we will travel very far toward the millennium in our generation, but it is for us to do what we can. Every man engaged in any branch of the mining industry should feel that it is his duty to contribute something to the sum of human knowledge and human happiness, and he will be eager to do so when he comes to realize that there is no joy like the joy of creating something new and valuable.

A great deal can be done and is being done by institutions of learning and scientific societies. I should like to pay a more extended appreciation to our colleges and schools of mines, because they richly deserve all the praise that can be showered upon them. But I want to refer especially to a subject of prime importance, the National Bureau of Mines, which we claim as the child of the American Mining Congress, and from which we hope for great things.

The Bureau of Mines.

The American Mining Congress for years demanded the creation of a Department of Mines and Mining in our national government, with representation in the President's cabinet. Due directly to the efforts of our organization, Congress finally created a Bureau of Mines. That our efforts were successful was due to the support of the distinguished guest who is to honor us by his presence during our present session, and whose wisdom, high-mindedness and sincerity of purpose we all acknowledge and applaud, President William Howard Taft.

Congress created the Bureau of Mines, but the usefulness of the bureau has so far been circumscribed within very narrow limits. It is true that it has been permitted to do some extremely valuable work to lessen the number of accidents in coal mines, but aside from that its chief work has been to test fuel for the government so that when Uncle Sam wants a load of coal for the capitol at Washington or for one of his battleships, he will get his money's worth. No doubt this is a necessary and important function, but we are not satisfied with this amount of aid for the mining industry. One of the important tasks before us is to create a demand that the Bureau of Mines be given a chance to do some of the things that we expected of it. Give it a chance, and we have no fear that it will not quickly justify itself. If we can convince our congressmen and senators that the Bureau of Mines ought to have the authority and the appropriation it asks for, our able and good friend, Dr. Holmes, and his assistants, will promptly demonstrate that the money could not have been better spent.

We believe that the Bureau of Mines ought to be to the miner what the Department of Agriculture is to the farmer. When the Department of Agriculture was created, it was the object of much criticism and yet it is now one of the most important factors in our national life, and nobody wants it abolished. I am an ardent admirer of the Department of Agriculture and of the work that it is doing. So far as tangible results are concerned, I believe it is

the most useful branch of our government. It tells the farmer how to maintain the fertility of his soil by rotating crops; when and how to plow his land; what sort of crops to raise, and how to get the highest yields; how to irrigate his land if it does not rain enough, and how to drain it if it rains too much. If the farmer wants to raise livestock, it tells him all about every kind, from bees to beef. If he wants to know what crops would be profitable in his country, it will cite him the relative advantages of peanuts and prunes, or sweet potatoes and alfalfa. If the San Jose scale, the gipsy moth, or the cotton boll or alfalfa weevil are getting in their deadly work, it will send out experts to study the pest, and figure out how to get rid of it. If he is afraid the frost is going to damage his fruit trees, he keeps his eye on the weather signals. If his hogs get the cholera, it sends him a batch of serum, that will render the live ones immune, and it will incidentally offer a bit of advice as to what to do with the dead ones. It tells the housewife how to cook the meat, how to bake bread, how to take care of the milk, how to make the hens lay, what to plant in the garden, how to get rid of mice, and how and why to swat the fly. These and ten thousand other things have helped to increase the value of farm products, and to make life more worth living.

This work is of such colossal importance that I should like to explain the activities of the department more fully in another way, so as to make it better understood, but such a recital would be tedious. I will say, however, that the Department of Agriculture is divided into nine bureaus, besides several so-called offices and divisions. These are enumerated as follows: Weather Bureau, Bureau of Animal Industry, Bureau of Plant Industry, Forest Service, Bureau of Chemistry, Bureau of Soils, Bureau of Entomology, Bureau of Biological Survey, Division of Accounts and Disbursements, Division of Publications, Bureau of Statistics, Office of Experiment Stations, and Office of Public Roads.

The Government appropriated about \$17,000,000 for the Agricultural Department in 1910. Secretary Wilson's report for that year covers 156 printed pages, and concludes with the following words:

"The foregoing is a brief account of what the Department has been doing during the past year to help farmers through research and demonstration. We have been diligent to contribute toward heavier crops, owing to high prices for the necessities of life, and we feel justified in thinking that our efforts and those of the scientists of the states are telling in the grand totals set forth. The day's

work on the farm is accomplishing more, and the acre is yielding more. During the past year such attention has been given to demonstration in the field of what is known to advanced students, that men of limited means and circumscribed conditions might learn by object lesson better methods and thereby increase their incomes and also contribute to the magnitude of our crops.

“Science that is not applied is dead.”

A Plea for the Mining Industry.

If these great things are done for agriculture, why not do something for agriculture's sister—mining? Be it remembered that man's every need is supplied by our Mother Earth. Out of the earth's crust comes everything we eat, drink, wear or use, all our habitations, conveyances, tools, and in fact everything we have, be it necessity or luxury. Agriculture and mining are the twin sciences that divide between themselves the work of extracting these things from the earth. Agriculture has the vegetable kingdom, and mining the mineral kingdom. Is there any reason why agriculture should be made the favorite child of our government, while mining is treated as a step-child?

The two sciences are of equal importance, and neither could exist without the other. We are not in the least jealous of the treatment that has been accorded to agriculture. She merits it all and more. We only plead that mining be likewise recognized, and given her just dues. To those who argue that agriculture is the more important, we say, “Pause and reflect whether any sort of a civilization could be possible without the products of the mines.” It is undoubtedly true that no mining or any other sort of work could be done without agriculture to feed the workers; but at the same time agriculture alone is helpless to advance the human family in its onward march toward higher and better things.

What Mining Does for Civilization.

Let me cite a few simple, homely examples. Does agriculture want to raise a crop? Let mining first furnish the implements wherewith to till the soil and harvest the grain. What sort of a civilization would it be that had to plow the soil with a crooked stick, and harvest and thresh with the naked hands?

When you sit down to eat a meal, agriculture furnishes the food, but mining supplies the stove, and probably the fuel, to prepare it for the table, as well as the pots, kettles, dishes and utensils. How far would man have progressed if he had to eat his food

raw, or had to cook it on the end of a stick over a wood camp-fire, and eat it with his fingers?

Do you want to build a dwelling? Agriculture will furnish the wood, but mining must provide the stones, bricks, mortar, cement, plaster, the paint, the windows, the door-knobs and hinges, the plumbing, the heating apparatus, the gas or electric light fixtures. A sorry sort of a house it would be without the products of the mines, and one habitable only by primitive savages.

Do you wish to travel from place to place? Show me the vehicle that could be constructed from the products of agriculture alone, and I will show you that it represents a civilization not far removed from barbarism. Your carriages, your automobiles, your railroads, your flying machines would be undreamt of without the materials produced by mining.

Do you wish to telegraph or telephone? The message goes over a wire provided by mining. Do you want to know the time of day? A wooden sun dial is about the only conceivable time-piece that agriculture could provide.

But I need not multiply examples to convince any reasonable person that mining is by no means second to agriculture, but is its equal in every respect. As I have said, it would be a physical impossibility to have any sort of a civilization with agriculture alone. Man is the only one of God's creatures that makes use of the mineral products, and perhaps that is the index of his superiority over all other forms of life. Mining men themselves do not always fully appreciate the dignity of their calling. There is no higher or nobler one in the world.

Ample Justification for Government Aid.

For these reasons we feel ourselves justified in asking for more ample aid from the government. Mining operators are not all millionaires. Many of them, in fact most of them, are men of limited means, who are struggling along, trying to make a living out of their claims. To such a man, research and demonstration would be of great benefit. Experiment stations would give him the information he needs, in order to work more intelligently and more efficiently, just as such stations have helped the farmer.

Great corporations can employ the best and most expert talent to work out their own problems, but such discoveries as they make are for their own benefit, and not for the benefit of the general public. An invention, such as an improved metallurgical process, seldom comes as an inspiration, but is evolved out of a long, tedious, series of tests that require special knowledge and training,

as well as time, apparatus, and material. Manifestly the poor operator can do no work of this kind, and it must be done for him, just as similar work is done for the farmer. I trust I have made clear both the analogy and the necessity.

In conclusion, let me say again that the American Mining Congress aims to stand for all branches of mining. It was founded by the metal miners of the West, but we Westerners have learned that the value of our metals is insignificant compared with the coal, iron and petroleum of the East. We want East and West to join hands, and make our organization truly representative of the mining industry of the whole country.

The Public Lands Question.

BY HON. WILLIAM SPRY,
GOVERNOR OF UTAH.

In discussing the question of conservation, permit me to assure you at the outset that I do not come before you as an advocate of the so-called State's rights phase of this important subject. The public domain of this country is the exclusive property of the United States, subject only to the control and disposition of Congress. The National Government has acquired title to its public lands by succession to Great Britain, by cessions from the original thirteen states and by purchase from foreign governments.

Differing as to conditions of cession to that portion of the public domain which lies north of Florida and east of the Mississippi the original states were agreed in this one particular, namely, that the territory thus ceded should be a *common fund* for the joint benefit of the then members and all future members of the Union. Differentiated as were opinions on the terms of admission of new states, justice ultimately prevailed and territories are admitted to the Union on equality of terms with the original states.

Under a reasonable construction of our constitution, the right of Congress to administer and dispose of the public lands of the United States as it sees fit and proper cannot be questioned.

The question of the policy of that administration, however, is one upon which opinions are widely different. It is a subject of surpassing interest; if, indeed, it is not a subject of deep anxiety. It is to the question of "policy" of administration and not of right to administer that I shall address my remarks.

First Conservation Congress.

Four years ago, at the suggestion of the Inland Waterways Commission, President Theodore Roosevelt invited the various governors, the senators and representatives of the Sixtieth Congress, and men of prominence in public affairs to confer together on the conservation of the natural resources, and in May of 1908 there was held at the White House the first conservation congress. Called ostensibly for the purpose of considering the use and conservation of the mineral resources, of the resources of the land and the resources of the water in every part of our territory, as matters of vital concern to the nation as a whole and to all the people, it was

reasonably assumed that the discussions would be along the line of waste prevention and that from them there would be evolved a policy of foresight in the administration of the public domain—a policy which, in its practical application, would have in view the needs of the future, while adequately meeting the demands of the present.

This conference, for some season or other, resolved itself into a more or less spectacular, wordy exploitation of facts regarding the exhaustion of natural resources.

From the modestly expressed fear that the present day wanton waste of the natural resources would work a hardship on future generations, the radical conservationists, supported by extravagant statements as to the depletion of the timber, the coal, and the mineral supply of the nation, grew alarmed for the material prosperity of the succeeding generation, and, taking advantage of a vague public understanding of the meaning of conservation, soon had the country on the very verge of a public resource famine, so portentous as to demand drastic changes in the administration of the public domain. Statistics were presented, which at the time were unchallenged, by which it was proven that within a comparatively few years the people would actually suffer from the cold for want of coal, that the vast mountain ranges would be stripped of their ores and precious metals, that the iron age would be a thing of the past and that the present medium of exchange would have to be abolished—in brief, that the great American republic would shortly face a veritable bankruptcy of public resource.

Shrinkage in Public Resources.

I believe I am safe in saying that the pages of history fail to disclose such a remarkable shrinkage in public resource, in so short a time, as the shrinkage which followed in the immediate wake of this first and subsequent conservation congresses. The boast of the American people that they are possessed of a nation of unequaled, not to say unsurpassed, natural resource, has been temporarily silenced by the conservationist and the bright future has been obscured by imaginary dark clouds of doubt and uncertainty.

The state executives departed from the first conservation congress filled with conservation ideas, and with the understanding that the several states were to have an influence if not a voice in shaping the future policy of public land administration, promptly appointed state conservation commissions, to act in conjunction with the national government.

Time has demonstrated that there was no clear understanding on the part of the states as to their participation in the conservation movement. I believe I am within the fact when I say that time also has demonstrated that the states have had much less to do with conservation in recent years than they had prior to the first Congress. The only tangible result that has come from the earnest efforts of public spirited men who enlisted their services with the Utah State Conservation Commission is the accumulation of facts regarding the public resources of Utah—mineral, coal, water and soil—which establish the previous estimates of its wealth of natural resources as ridiculously low, and demonstrate that the variety and extent of this resource is impossible of even approximation; and so it transpires that while the national conservation advocates continue to hold conferences given over largely to the discussion of resource shortage, the State Conservation Commission of Utah has fallen naturally and rightly into the discharge of duties that would ordinarily devolve upon a bureau of research and publicity and it is today supplying information on the bountiful natural resources of the state.

Conservationists One-Sided.

The great trouble with the discussions of the National conservationists has been that they have been altogether too one-sided; too much has been said of the exhaustion of coal and too little has been advanced concerning the fact that we are leaving the age of steam behind us and entering on the age of electricity; too much has been said of the depletion of the timber supply, while far too little has been said regarding the cement era; too many contracted papers have been presented on the exhaustion of the mineral resources of the nation, and the mineral deposits have been grossly underestimated.

I have no desire to combat statistical arguments regarding mineral exhaustion with statistical arguments regarding mineral wealth; but I do desire to say in passing that Utah will place mountains of the largest and choicest iron deposits in the world against rows of figures on the exhaustion of the iron supply of the nation; it will place thousands of square miles of coal measures against the estimated end of the coal supply measured by tons; it will meet figures on the passing of the copper output with mountains of copper ore, and it is perhaps pertinent to here observe that when the first statistics on mineral exhaustion were being presented at Washington in 1908, a Utah man was perfecting his plans for a new method of handling low-grade copper ore that then lay in the

"exhausted" or non-producing zone and consequently found no place in the elaborate statistical data, and that since his method was put in operation the "exhausted area" has developed into one of the greatest copper producing camps in the world.

Exhaustion of Soil.

Too much has been said regarding the exhaustion of the soil. I submit that soil exhaustion is a problem for conservationists to handle; but it resolves itself absolutely to an elastic policy that will meet local conditions. It is perhaps true that the soils of the East have been worked too steadily without sufficient fertilization; it is absolutely true that in the West nature replenishes and fertilizes her soils through the nutrition that comes from the everlasting hills. Irrigation produces crops and at the same time conserves the strength and adds to the life-giving properties of the soil.

Mind you, I do not desire to be understood as being opposed to conservation nor to wholly condemn the system of its operation. I believe in the forest reserve. In our own state, for instance, I have seen great watersheds rejuvenated through government supervision and the water supply regulated and purified; but I do not believe in the withdrawal of agricultural lands to be placed in the forest reserves, upon which lands nature herself never produced trees and upon which lands human agencies will never produce forests. It is in these withdrawals and the withdrawals of agricultural lands, because of possible oil deposits, that the hardship lies and it is in urging these withdrawals that the radical conservationist does his greatest mischief.

I do not believe that the conservation of the coal supply means the cessation or even the curtailment of coal production. Conservation of the coal supply resolves itself into a question of national or state regulation in the matter of its production. In other words, I believe it is within the range of possibility to so regulate the operation of coal mines as to recover and save for useful purposes a vast percentage over what is now actually mined. It is within the province of the conservationist to urge, as it is within the range of good business judgment to demand, that the exhaustion of one particular coal claim or deposit shall not mean the caving in and total destruction of its workings, but the saving thereof for the use and benefit of the adjoining property.

Cannot Approximate Mineral Resources.

I have absolutely no sympathy for the bugaboo of mineral exhaustion. No man or set of men will assume to estimate the min-

eral deposits of this nation. Not until the surface of the entire United States has been honeycombed by the prospector and miner will any thoughtful man attempt to approximate the mineral resources of the nation, and then no man will have the temerity to fix a limit to which the sciences may go in discovering new processes of extracting and making useful the mineral deposits of Mother Earth.

Now as to the policy of the administration of the public domain. First of all, bear in mind the fact that the states of the Union are admitted on terms of equality. With this fact firmly established, consider that the nation has operated for many years under a liberal policy in the disposal of its public lands; that the broad terms of this policy have been fundamentally responsible for the growth, development and wealth of the great centers of the East; that an empire within an empire, the great empire of the West, is approaching an era of development that from all indications will eclipse the wonderful growth of the East; that the sale of agricultural lands was primarily responsible for the growth in population in the East; that the development of the mineral resources added to the wealth of the East, and that the use of all the bounteous gifts of nature made the East what it is today.

Because of the extravagant representations which have heretofore been mentioned, the former liberal policy of the National Government has been materially curtailed; vast areas have been withdrawn from entry, particularly in the West; new and radical departures in the regulations governing the handling of mineral and oil lands have been adopted, while it is now urged that water power sites should be withdrawn from entry. The leasing of mineral and oil lands and water power sites by the government is being considered as a method of carrying out the conservation idea.

Present Policy Should Not Be Pursued.

Many reasons can be advanced why such a policy of administration of the public domain should not be pursued. Permit me to mention briefly the most important:

Under this policy the states wherein the public domain as yet lies practically in its virgin state are deprived of that benefit that accrues to the older states through the disposal of its public domain and use of the natural resources. It is obvious that the development which came to the older states, through the disposal of the public domain to individuals, will be deprived the younger and less developed states and that, while the greatest direct benefits of the former liberal policy accrued to the individual states wherein such

sales were made, the direct benefits not only from the sale but from the development of the public lands in the Western states, under the present policy, will go to all the states of the Union.

Suppose the government leases its mineral and oil lands and its water power sites and remains forever vested of title, who can estimate the loss in revenues from taxation that may be suffered by the states wherein these valuable resources are located, which revenues have for years been accruing to the older states because their resources have been vested in private or corporate ownership and become subject to taxation by the states—a thing which it appears will be utterly impossible under the leasing system so long as the government holds title, since government lands cannot, under the constitution, be subjected to taxation.

This phase of the leasing system alone condemns it as a policy in absolute violation of the spirit of equality of rights in the public domain. A material factor in the growth and development of a state is the distribution of the burden of taxation. Take from the state its right to tax mining claims, the mineral and oil output, and the power sites within its boundaries, and you rob that commonwealth of a revenue that has been a source of ever-increasing income to the older states; and increase instead of diminish the burden the freeholder is already called upon to bear.

Discussion of Leasing System.

Perhaps a legal expert can enlighten you as to the power of states to tax even the net proceeds of mines under the proposed leasing system from the government.

Carry the mineral leasing policy a step farther: If it is proper that the pioneer prospector, the man above all who stakes his all on a chance that he and his fellow men may prosper, the man who invests his money, his talents, his energy, in delving after the mineral deposits of the public domain, and who, after the expenditure of his means, finds a "pay streak," installs machinery, opens up a vein of ore, which but for his persistency would have lain hidden for centuries, must turn over to the federal government what he has found, and if he will continue to develop it he must do so as a lessee, why should not the same policy be proper in the matter of agricultural lands?

In short, let the homeseeker select a piece of raw land which he regards as a possible producer of agricultural products, let him clear it of sagebrush, let him plow and seed the same, and, if in an arid section of the United States, let him at his own expense acquire and deliver to that land the water which is necessary to produce

the crop, and then if the experiment is a success and he secures a rich harvest, let him become a lessee of the federal government and work his land, not as a freeholder but as a tenant of the national government, which becomes his landlord. And I submit that if we are to wait on the national government for the putting of the mineral and oil and agricultural lands in condition for tenancy, future generations will be amply provided with undeveloped resources, both land and mineral.

Landlordism Autocratic.

Aside from this, landlordism has always been autocratic, while tenantry has developed peoples who lack in the two most glorious qualities of American citizenship—loyalty and patriotism. Out in the West we have been building up our country by urging people to own their own homes, to own their own places of business, and to own the business in which they are engaged, and it is the only policy that will make toward intelligent, broad-minded, progressive citizenship.

Tenantry is repugnant to the ideals of American citizenship.

While I have pronounced views on the public land policy, I do not want you to regard me as a radicalist. While I do not believe that under the present law the states have the legal right to a voice in the administration of the public domain, other than their representation in Congress, they have a moral right to insist on a policy that shall be in harmony with the previous policy and calculated to develop and upbuild the country.

Whether Congress should or should not transfer the control of the unappropriated public lands to the respective states wherein they lie, is a question upon which there is much agitation. Laying that problem to one side, I do believe that the public land within the boundaries of any state; that the minerals thereof, the oil deposits, the timber and the natural resources individually and collectively should be administered on terms of equality in every state of the Union. And there is but one term of equality; that is the disposition of those lands to the bona fide homeseeker, to the prospector and to the miner.

Maturing States Entitled to Resources.

I believe that the Federal Government legally exercises supervision over the public domain in the entire United States, but the moment the policy of that administration makes for the benefit the whole of the United States at the expense of the growth, development and prosperity of a state that is entitled to the same

benefits from the public domain as have been enjoyed by others, the policy is in violation of the spirit of fairness and equality. The fact that the resources of some of the older states have been partially or even wholly exhausted should not for a moment argue that the younger or the more conservative states should be deprived of their resources.

In other words, the natural resources within the given boundaries of a state, whether vested in private, state or federal ownership, constitute the capital upon which that particular state must conduct its business, and that capital should not be impaired by stagnation. In my opinion, the business of the government and the business of the state is being properly conducted when the public lands go to bona fide homeseekers, when its minerals are being converted into the wealth of the state and the nation, and when its waters are being used for irrigation, transportation and power, and when its timber is cut to build homes, schoolhouses and public buildings. And the capital of the nation and the state and the individual is being impaired when the use of these great natural resources whose development creates life and prosperity is so restricted as to prevent their free and unlimited development.

Past, Present and Future of Copper.

BY HORACE J. STEVENS,
HOUGHTON, MICHIGAN.

The great copper industry of the present day is a thing of small beginnings. One century ago, in the year 1811, the world's production of copper was a trifle under 10,000 long tons, an amount smaller than was secured last year by any one of more than twenty different mines. During the present year the great Anaconda mine, of Butte, has produced, during nearly every month, as much copper as was supplied by all the mines of the world, in the entire year of 1811.

The Past.

Fifty years ago, in 1861, the world's output of copper was but a trifle more than 100,000,000 pounds, a production that was exceeded, in 1910, by the Anaconda, American Smelters Securities Co., and Phelps, Dodge & Co. The production of the year 1900, the last of the Nineteenth Century, was just fifty times as great as that of the year 1800. Should the same ratio of increase be maintained during the Twentieth Century, the output of the year A. D. 2000 would be 24,318,150 long tons of copper, twenty-five times as much as the present production, and even a fifty-fold increase for the Twentieth Century would allow an average increase of less than four per cent, while the average annual increase, for the decade beginning 1900 and ending 1910, was almost exactly seven per cent, compounded yearly. Those who foresee a complete collapse in the copper industry would do well to give consideration to the actual figures of increase during the past. The copper industry does not move forward at even an approximately steady rate, from year to year, but is given to advancing by great leaps, almost inevitably followed by periods of quiescence, or even of actual retrogression. High prices for the metal stimulate production, while curtailing consumption, and, as a direct consequence, output is increased, which decreases prices, which in turn brings about decreased production, due to the inability of small and weak producers to stand the strain of low prices. Decreased production again brings about high prices, and the cycle is begun anew. Much the same conditions existed in the American iron and steel industry for 50 years, until the formation of the United States Steel Cor-

poration, which, while unable to prevent periods of depression, as its sponsors fondly hoped, has proven a wonderfully steadying factor in the iron and steel market, serving the purpose of a gigantic balance-wheel.

Growth.

The growth of the copper industry is best shown by the following figures of the world's production, by decades, in long tons: 91,000 tons in the decade ending 1810; 96,000 tons in 1820; 135,000 tons in 1830; 218,000 tons in 1840; 291,000 tons in 1850; 507,000 tons in 1860; 900,000 tons in 1870; 1,189,000 tons in 1880; 2,373,000 tons in 1890; 3,708,000 tons in 1900; 7,390,000 tons in 1910. The influence of the electrical industry upon the consumption of copper is plainly shown by the figures since 1880. The production of the seventh decade of the Nineteenth Century was only 900,000 long tons, or a trifle less than ten times the output of the first decade of the century, while the production of the last decade of the century, ending 1900, was more than forty times the output of the first decade, and was more than four times as great as that of the decade ending in 1870, only thirty years before. The output of the decade ending 1910 was more than six times as great as the output of the decade ending in 1880, and was almost exactly double the production of the previous decade ending in 1900. The production of copper by the world, amounting to approximately 7,390,000 long tons, for the decade ending 1910, amounted to more than three-fourths of the total world's production of copper for the entire preceding century.

Figures of production and consumption of any given commodity in universal use may differ from year to year, according to whether a surplus is accumulated, or a preceding surplus is drawn upon, but over long-term periods; production and consumption necessarily are the same, and, figured by decades, it is safe to say that the figures of production are practically the figures of consumption. At present there is a copper surplus, of which much is heard, but to show how comparatively unimportant the present surplus is, when compared with the figures of output for the preceding decade, it may be stated that the world's surplus of copper, at the present time, is slightly less than 300,000,000 pounds of finished metal, or a trifle under 135,000 long tons, an amount less than $5\frac{1}{2}$ per cent of the total production of the decade, and equivalent to only about eight weeks supply of copper, at the present time measuring the supply either by productive capacity or by consumptive demand.

Very exact figures are available regarding production, dividends, costs and metal prices of the mines of the Lake Superior district since the first production was secured, in the year 1845, the total output for that year having been only 24,880 pounds of finished copper. The total production of fine copper, by Lake Superior mines, from 1845 to 1910, inclusive, a period of sixty-six years, or two-thirds of a century, was 5,122,478,402 pounds, having a gross value of \$726,849,840, from which were paid dividends of \$182,824,770, the ratio of dividends to gross values, for this entire period, amounting to 25.1 per cent, and dividends, divided by copper production, show average dividend payments of 3.56 cents per pound. The average price received for all Lake Superior copper, for this period of sixty-six years, was 14.19 cents per pound, which after deduction of dividends, leaves an estimated cost of 10.63 cents per pound, for all years. By adding the figures of expenditures on unproductive mines, amounting to about \$60,000,000, the cost of Lake Superior copper would be made almost 11½ cents per pound, and by adding a further \$15,000,000 for assessments on mines that have since repaid in dividends the original assessments, the cost of copper would be made about 11.85 cents per pound, leaving a net margin of profit, for the entire production, of almost exactly two cents per pound, plus the present aggregate value of the various active mines.

Average Cost of Lake Superior Copper.

Omitting the production of mines that have not proven profitable, the average cost of Lake Superior copper, yielded by dividend-paying mines, has averaged about 9.5 cents per pound, for all years, and the present cost of making copper, by all of the producing Lake Superior mines, probably is slightly above nine cents per pound. The actual average cost of making copper, in the leading producing fields, probably is between nine and ten cents per pound, at the present time. Some of the newer fields, which are skimming their cream, show lower costs, but it is difficult to see where the world will be able to produce its copper, in years to come, at an average cost materially under ten cents per pound, this figure excluding the limited production of badly planned and badly managed mines, which yield only a small fraction of the total copper output, but secure their metal at an average cost very much higher than the average cost of all mines.

For the immediate future, the supply of copper in sight is fully adequate, and no unduly high prices need be anticipated, but the figures clearly foreshadow another boom period, within the next

two to four years, at which time the alarmists will be as badly scared, for fear that the copper supply is petering out, as they now are for fear that the production is so much greater than consumption that nothing but permanent disaster is in sight. Allowing an average increase of consumption of 7 per cent yearly, the figure that has ruled during the first nine years of the present century, the world's requirements of copper will amount to approximately 1,650,000 long tons in 1920; 2,975,000 long tons in 1930, and 5,350,000 long tons in 1940—the latter named year, now only 29 years ahead, calling for a copper output almost six times that of the present rate. Twenty-nine years ago, or in the year 1882, the world's production of copper was 181,622 tons, or about one-fifth of the present output. Allowing for even a five-fold expansion during the next three decades, to correspond with the five-fold expansion in the three decades past, the world's copper requirements in 1840 will be more than 4,500,000 long tons. Should the ratio of increased production and consumption remain at an average of seven per cent for the balance of this century, the world would yield and consume, in the year A. D. 2000, about 175,000,000 long tons of copper, a quantity of the red metal more than double the tonnage of the world's present production of iron and steel.

The First Decade of the Twentieth Century.

A survey of the progress made by the copper industry during the first decade of the Twentieth Century, now lacking only a few weeks of completion, shows no revolutionary changes, but does show steady and in some cases phenomenal progress, in nearly every division of the industry. In the matter of mines, the old districts of Butte and Lake Superior remain the largest producers, but Arizona, with a half dozen important copper fields, passed Montana in output in 1908, though again taking second place in 1909. In copper mining, the most important development of the decade has been the making of the so-called porphyry mines, in which disseminated copper sulphides are mined from chistose or porphyritic country rocks. The development of such important new producers as the Utah Copper, Nevada Consolidated, Miami and others of this class, has alarmed many people, who jump to the conclusion that the so-called porphyry mines must close down the older mines, developed on veins in Butte and other camps, and on the stratified trap beds of Lake Superior. There is no real occasion for this alarm, as the porphyry mines, while highly important, are not apt to be developed in large numbers. In fact, the entire western part of the United States has been scoured, by the keenest and strongest

aggregations of capital in the copper business, for promising country-rock deposits, with a net result, to date, rather insignificant in the number of properties developed, though highly important in output secured already, and even more important in promise of future production. When the Mesaba iron range was opened, eighteen years ago, a similar wave of pessimism swept over the mine-owners of the older iron ranges in Michigan and Wisconsin, but time has proven that the high-grade ores of the Mesaba, capable of being mined by steam-shovel, at wonderfully low costs, are absolutely necessary in furnishing an adequate supply of ore to the iron and steel works of this country, and similarly it will be found, as time passes, that the production of the porphyry mines is absolutely essential in supplying the copper needed by the world, at anything like a fair figure to the consumer. Processes of actual ore extraction have been modified and improved, in many fields, with a resultant increase in safety to miners, and decrease in cost of ore extraction. The steam-shovel has come to stay, in copper mining.

Mines Slow to Adopt Electric Power.

Strange to say, the copper mines, which are vitally interested in extending the use of copper, were somewhat slow in adopting electric power, but rapid progress has been made in this direction during the past decade, and all of the mines of Butte are now electrified, while there has been a great increase in the use of electric energy in the Lake Superior district. The constantly increasing use of hydro-electric power is now restrained, and further restraints are threatened, by the conservationists. The newly adopted system at the Anaconda mine, in Butte, which combines the utilization of hydraulic, electric and pneumatic power, offers great possibilities of pliancy and economy, and the lead of the Anaconda is likely to be followed by many other important mines.

In ore reduction, material progress has been made in concentration, the very general adoption of Wilfley tables and similar devices permitting the saving of fines previously wasted. Hydraulic classifiers, settling tanks and a variety of ingenious devices for the saving of the uttermost mineral values, have aided in this work, and are now found in most important mills. Slimes, previously wasted, are now carefully collected in slum-ponds, and reworked; with an aggregate yearly extraction of many millions of pounds of copper formerly wasted.

Perhaps the most striking progress made during the past decade, in any division of the copper industry, has been in smelting. No new principles have been adopted in either reverberatory or

blast-furnace work, but reverberatories of a gigantic size hitherto unknown have been adopted at many plants, while even more striking progress has been made in the capacity of blast-furnaces. Ten years ago, a 300-ton blast-furnace was considered exceptionally large, and near the possible maximum of size, but the Washoe works of the Anaconda Copper Mining Co., again blazing the way, now have two furnaces, each 56 inches by 51 feet in size, with a maximum daily smelting capacity of 1,800 tons each, and a third furnace that is 56 inches wide and 87 feet long at the tuyeres, this mammoth furnace actually having smelted 3,100 tons within 24 hours. It has been my privilege to see this great blast-furnace with smelting in progress at the western end, while the eastern end was frozen, and repairs in progress within the bosh.

The past decade has been a further extension of the electrolytic process of refining, and the great bulk of the world's copper now is refined by electrolysis. In fact, very little finished copper, other than electrolytic, reaches the market, except from the Lake Superior mines, the product of which commands a premium by reason of its extra toughness and superior adaptability to drawing and stamping. With depth, many of the Lake Superior mines have shown a marked increase in arsenic, and for this reason a considerable part of the Lake Superior copper now is refined electrolytically, and sold as electrolytic and not as Lake copper.

Combines and Mergers.

At various times in the past efforts have been made at copper corners, but these have proven uniformly unsuccessful. The first copper corner was by the Associated Smelters, of Swansea, and might be termed the original copper trust. The Associated Smelters, which flourished from 1840 to 1860, were most arbitrary in their operations, buying cheaply, selling dearly, and zealously guarding their smelting processes. As a result of the very short-sighted policy of screwing prices of ore and matte to the lowest possible figures, while selling the finished product at the highest possible prices, with the ore producers aggravated by arbitrary charges for draftage and moisture, and the further grievance of unfair assay methods, the mine-owners were led to build independent smelters at and near the mines, in most of the principal copper producing districts, these effectually destroying the power of the Associated Smelters of Swansea as the arbiter of the copper industry.

The second attempt at a copper corner was made by the Société des Metaux, of Paris, under the leadership of M. Secretan, the Société des Metaux becoming, in February, 1887, one of the six-

teen underwriters that organized the Syndicat Secretan, with a nominal capitalization of \$13,587,000. This syndicate contracted with the leading copper producers for their output, and speedily advanced the price of the metal to 173¼ cents, effecting an increase of more than 50 per cent in price within one month. Consumption immediately declined to a low figure, and the Secretan Syndicate borrowed enormous sums, to carry its rapidly accumulating copper, from French, German and English banking houses, the Comptoir d'Escompte of Paris alone lending the enormous sum of \$33,368,000 to the Syndicat Secretan. This corner broke early in 1889, after about eighteen months existence, and in a single day, in the spring of 1889, the price of copper dropped from £70 down to £35 per long ton. About four years were required to clean up the wreckage remaining from this ill-advised corner, and put the copper industry soundly on its feet again.

The third attempt at a copper corner was made in February, 1889, by the organization of the Amalgamated Copper Co., which corporation maintained the price of copper, arbitrarily, at 17 cents per pound, until October, 1901, when an accumulation of 200,000,000 pounds of metal compelled a break that took the price of copper down to about 12 cents a pound, and about three years were required by the industry to recover from the effects of this corner.

The price of 26¼ cents per pound, reached in March, 1907, by Lake copper, was not the result of any corner, but came about through an ill-advised scramble by consumers, who feared that they could not secure the metal. As a result of the high price, consumption was curtailed sharply in all directions, as happens inevitably under such unsatisfactory price conditions, and the copper industry of the world still suffers from the existence of a surplus of slightly under 300,000,000 pounds of metal, remaining from a surplus that, including both visible and invisible supplies, reached about 450,000,000 pounds at the end of 1909, since which time there has been a small but steady decrease in surplus from month to month.

Tendency Towards Larger Units.

The tendency in copper mining, as in all other branches of industry, is toward combination in ever-larger units. This tendency is based upon and governed by purely economic laws, and the laws of political economy are so much stronger than any law ever devised by a parliament, or any ukase ever promulgated by a despot, that it requires no spirit of prophecy to forecast the ultimate out-

come of the present clash between the laws of political economy and the laws of Congress.

In the copper industry the great bulk of production now is furnished by about a dozen different interests. The Amalgamated Copper Co. has a productive capacity of about 300,000,000 pounds yearly, with an actual output last year of 223,808,546 pounds. The American Smelting & Refining Co., or Guggenheim interests, have a productive capacity only slightly inferior to the Amalgamated, with an actual output of 174,150,000 pounds in 1910, which figure will be exceeded materially this year. The production of Phelps, Dodge & Co. was 116,888,070 pounds in 1910, while smelter production, including custom ores treated, was 138,805,562 pounds, and the sales agency of this firm handled 194,138,696 pounds of copper last year. The Calumet & Hecla, with its subsidiaries, has a productive capacity of nearly or quite 150,000,000 pounds yearly. The Rothschild interests, controlling the Rio-Tinto of Spain, and the Boléo of Mexico, have a copper output of more than 100,000,000 pounds yearly.

The leading copper producers of the world are now operating under check, a 10 per cent reduction in output having been put into effect in August of last year. Under the Sherman anti-trust law, this checking of production would be considered criminal, if it could be proven, yet the reduction of output was absolutely necessary in order to save the copper industry from a prolonged period of utter demoralization, during which scores of millions of dollars would have been lost by investors, and a quarter million or more of workmen would have suffered severely, many of them losing their jobs, and the remainder suffering severe cuts in wages. We have the authority of eminent statesmen, totally devoid of business experience, that the Sherman act is a panacea for all ills of the body politic, yet no sensible business man would do otherwise, if he had the power, than to reduce production at a time when a surplus product threatened not only the small remaining profits, but the very foundations of the copper industry. The issue thus is drawn very plainly between our present politico-criminal law and all the laws of business and of political economy.

Business and Politics.

I have no connection, direct or indirect, with any copper mining company or copper producer, except that, in a general way, I have small business dealings with a great majority of the actual copper producers of this and foreign countries, hence I speak with-

out personal prejudice, and not as the mouthpiece of any individual copper interest.

The greatest present menace to the copper industry in the United States is a menace that is common to all branches of mining. The entire American industry of mining is threatened by men operating under the names of progress and reform, whose slogan is conservation, but who are political economists of the Stone Age, and first cousins, in mental capacity, to the Troglodytes. The conservation experts of the forest service are systematically hampering legitimate mining operations throughout the Western states, and both law and justice are disregarded by these conservationists, while the federal departments affected are governed more by rulings than by law. Congress has made the very grave and dangerous mistake of endowing the executive departments of our government with the power to promulgate rulings that have the force of law, and in some of the departments rulings have been put into effect that not only are arbitrary and unjust, but that also are absolutely illegal, yet the poor miner, who has complied with all the requirements of the law, is liable to see his property, to which he is clearly entitled, both by law and justice, taken from him by the officials of the forestry service, under the slightest pretext, and is denied access to or recourse by the courts. The most odious forms of despotism can show nothing worse, in this particular, than the hideous imposition under which honest miners are suffering in the Western states of our country.

Anaconda and the Guggenheims.

The conservationists, many of whom might with greater truth be termed conversationists, would close the Washoe Works of Montana, the greatest reduction plant in the world, with a monthly output valued at millions of dollars, employing thousands of men, and indirectly giving employment to tens of thousands of men, under the childish plea that the smelter fumes are injuring timber on the federal forest reserves—timber that, in a pinch, might furnish fairly good lodge-poles for Indian tepees.

The Guggenheims are the bogey-men with which the conservationists most frequently alarm the public. We have had it dinned into our ears by innumerable patriots seeking office, and repeatedly set before our eyes, in every yellow newspaper and muck-raking magazine, that "the Guggenheims are stealing Alaska." As a matter of fact, the Guggenheims control a copper mine in the interior of Alaska that is a wonder in its way, yet which cannot be rated at more than a third-class property. This mine, the Bonanza, is a

sort of copper-plated gold-brick, in that an interior core of limestone is surrounded by phenomenally high grade bornite and copper glance. No competent mining man who has visited this property ever has estimated the amount of ore in sight, and safely to be inferred, as capable of yielding more than 100,000,000 pounds of finished copper, a total production equivalent to only one year's maximum output by any one of the six leading copper mines of the world. In order to get this ore out of a wilderness the Guggenheim interests have built the Copper River & Northwestern Railway, a line of 195 miles length, variously estimated to have cost from \$13,000,000 to \$25,000,000. The gross value of all the copper contained in the Bonanza mine, taking the outside estimate of tonnage, is considerably less than the lowest estimate of cost of this railway, and the net profits derivable from the Bonanza mine cannot, by the most liberal figuring, be estimated at more than \$4,000,000 to \$5,000,000. Instead of being commended for their enterprise and courage in building this railway through an arctic wilderness, the Guggenheims are held up to public scorn as thieves and robbers. This railway cuts through workable beds of coal, but is prohibited by the federal authorities from developing or using this coal, and is compelled to import inferior coal from British Columbia, at a cost more than double that of domestic coal, if its mining were permitted. Not only does the railway suffer from this arbitrary action by the federal government, but the 50,000 unfortunate American citizens who live in Alaska are compelled to pay double or triple the price they should pay for fuel, through efforts of the conservationists, backed by the federal government, to "save" the coal for some future use, at an indefinite date. It scarcely seems strange, in the light of this situation, that mourning was donned in Alaska when the high priest of conservation reached that land, which the conservationists seem to consider a sort of penal colony. The conservation of our mineral, timber and power resources should be effected along legal and business lines, and not under the guidance of spiritualistic visions.

The reformers as these gentlemen advocate themselves, are advocating the government building and operation of railways in Alaska, and the government ownership and operation of coal mines, which is state socialism, pure and simple, and any man seriously advocating such a policy is a socialist, no matter what he may choose to call himself. It is further advocated by the junior senator from Wisconsin and his official and unofficial organs that the government also should buy the Copper River & Northwestern railway from the

Guggenheims. Doubtless the Guggenheims will be very glad indeed to sell their railway, which is threatened by tidal floods and glacial floods, with its principal bridge across the Copper river threatened by a glacier itself, but it is difficult to see where the long-suffering taxpayer will benefit by such a purchase.

The federal government already has withdrawn immense tracts of oil, coal and phosphate lands, and the next step in this cleverly devised socialistic propaganda will be to withdraw from entry or inhibit mineral entries upon iron, copper, lead, zinc, silver and gold lands.

Figures of Conservationists Ridiculous.

The pretext for past withdrawals is that our mineral resources are being depleted so rapidly that there is danger of their extinction in the near future unless administered by an all-wise and all-powerful central government, which can make no mistake and can do no wrong. The figures regarding our natural resources, put forth apparently in earnest by some of the leading conservationists, are so utterly ridiculous that it is impossible to regard them seriously. There is more iron ore existing in a single county in my own state of Michigan than any professional conservationist ever has estimated to exist in the entire world. This is made as a plain statement of fact, and those who think to the contrary are challenged to impeach the assertion.

The lawless actions of the forestry bureau, which is perhaps the most odious of our bureaucratic iniquities, have been of a sort to arouse the alarm of all thinking men who believe in self-government. Apparently it is the cunningly devised scheme of the leaders of the so-called conservation movement to expropriate the public lands now held by the federal government in trust for the benefit of any and all citizens who will develop them and hold these public lands for the sole benefit of the bureaucrats, who will enjoy the usufruct, through a carefully planned system of leases, by which the water power, forests, mines and arable lands will be leased to corporations that are amenable to the benevolent control of the doctrinaires and to individuals who can be terrorized to conform to the exactions of the bureaucracy. The opportunities for graft that are contained in such a system are almost inconceivably great, and, comparing their claims with their actions, the conclusion is irresistible that the conservation movement, as now managed, is not a genuine effort to improve the condition of the American people, but a cleverly devised scheme to deprive the people of their landed heritage and fix upon their necks the iron collars of serfdom, to the

end that a more gorgeously and richly endowed bureaucracy may flourish upon the soil of what once was a free country.

It is said, and apparently with reason, that the spy system of the United States is now the finest and most extensive in the world, excelling even those of Russia and Turkey, heretofore the most progressive nations in the matter of thoroughly organized espionage. We also have the benevolent activities of an attorney general who is now vigorously prosecuting the kindling-wood trust. It is obvious that the shaving-paper combine and the office-towel monopoly had better watch out, for their turn may come next. Why does not the attorney general prosecute the labor trusts, unions, which already are trusts in the meaning of the interstate commerce law, existing in open defiance of the beneficent provisions of the Sherman act? The answer seems obvious. The present activities of the United States Department of Justice, as it is termed officially, afford a spectacle for gods and men.

Business Suffering from Uncertainty.

Business throughout the United States is suffering from uncertainty—which has been accentuated, rather than decreased, by the recent decisions of the Supreme Court, which read into the Sherman act a provision that only “unreasonable” restraint of trade should be punishable under the terms of this act. As Richard Olney justly remarked, this leaves the Sherman law about as clear as if Congress were to pass a law stating that only a “reasonable” tariff should be imposed, and leave the adjustment of all duties to the Supreme Court of the United States.

This nation has been made great and prosperous by the initiative and enterprise of the individual, yet the theorists bid us throw aside the habits and course of conduct of centuries, and depend solely upon the initiative—God save the mark—of the bureaucrats. Why not speak out boldly what all sensible and patriotic citizens are thinking throughout this country? We are suffering from a most odious form of bureaucracy, fortified by an extensive system of paid spies, an organized clique, a clever press bureau, and the systematic support of that section of the press noted mainly for its dubious motives and devious politics. Some citizens with defective hearing take the clamor of this portion of the press, desirous of cheaper wood pulp, for the real voice of the nation. It is time that the yellow newspapers, muckraking magazines and purely political conservationists were told to stand aside and permit the federal government to be run once more in accordance with law and common sense. Some of the gentlemen who are preaching progress

and conservation have combined moral platitudes with business turpitude, and label their product as reform. In the name of progress they bid us turn our faces to the rear; in the name of conservation of our natural resources, for generations yet unborn, they forbid us to utilize the mineral power and timber resources required for the needs of the present generation. Their plan of state ownership of mines and water powers is state socialism, very thinly disguised. These men are enemies of the republic, who under the specious cloak of declamatory patriotism would rob us of our right to self-government.

Our worthy president takes the stand that because the Sherman act is law it must be enforced rigidly, regardless of consequences. If this be the case, it necessarily follows that all federal laws must be rigidly enforced, regardless of consequences, and it would be interesting to learn why our federal government does not enforce, or even attempt to enforce, the fifteenth amendment to the Constitution of the United States, which reads as follows: "The rights of citizens of the United States to vote shall not be denied or abridged by the United States, or by any state, on account of race, color or previous condition of servitude." Is it possible that the Sherman act takes precedence of the Constitution?

Conservation and the People.

BY JESSE KNIGHT,
PROVO, UTAH.

This Mining Congress is convened, I take it, not only for the purpose of considering the interests of the mining industry, but the best interests of the American people as a whole. Coming from a state that has in its advancement been freighted with difficulties, as have many of the inter-mountain states, and assuming no knowledge but that acquired in the tough school of experience of a Western trail blazer and pioneer, I must be permitted to express my views, as such, if at all, before this Congress.

Personally, the greatest efforts of my life have been directed toward the development of the mines of the West, particularly those of my own state; and as a miner I have always had great hopes for the future of Utah and not only for the future of Utah but for the now rapidly advancing inter-mountain states. If I am to judge the future by the past, this region of which I now speak still appeals to me as a land of promise. I have seen it made what it now is largely by individual effort, and without government aid. As the years have gone by I have observed the Western spirit everywhere in the development of its latent resources until it has secured, in a measure, that recognition the inter-mountain states so richly deserve. We of the West have made, under very adverse circumstances, a region now of great wealth. Not only that, but unaided as we were, we have contributed immeasurably to the wealth of all sections of our great country. Mindful of the hardships, struggles and experiences of years that have gone before and being hopeful of the future, I trust I may be pardoned if I express at this time and impress upon you, some of my personal views and experiences concerning governmental policy toward the undeveloped resources of the inter-mountain states. I desire to speak briefly of the so-called Government conservation policy. Personally, I have felt the effects of conservation.

Some years ago, over on White River in our state, on what is known as the Gilsonite veins, several hundred mining locations had been made by mining men and American citizens in good faith, under the mining laws. That these locations were valuable is beyond question, and that they were situated on the public domain seemed

to prompt some of the officers of the National Government that the government ought to adopt some means of conservation and to refuse to part with government title until the government received directly some benefits thereby. Personally I was the owner of about forty of these claims, on which, for five or six years, I had performed the annual assessment labor as required under the mining laws.

In the immediate vicinity of these claims, a St. Louis Gilsonite Company, a corporation, was operating similar mines and had a monopoly of the gilsonite product and thereby was acquiring great wealth. Individuals were not permitted to patent their claims. The government in its conservation plan proposed leasing, and leasing at that time meant leasing to this St. Louis Gilsonite Company. Thanks, however, to certain senators and especially to the Hon. Jos. L. Rawlins, then senator from Utah, and a power in the Senate of the United States, by whom it was seen that conservation along leasing lines of the public domain was not a true governmental policy. During these years myself and others were doing all in our power to comply with the mining law and to secure title to our locations, but it seemed to us a hopeless task. We were finally assured on every hand, so far as the government officials were concerned, that we would never be able to do so; in fact we received that assurance not only from public officials but from this St. Louis Gilsonite Company as well. Discouraged and impoverished as some were in seeking to comply with the law by doing the work upon these claims, the claim owners, one by one, sold their interests, and I did so too, to a too well recognized American institution, a private corporation.

Now the sequel of this brief story is the thing to which I especially desire to call attention. Scarcely six months had passed by, after the passing of the rights of the individual mine claimants, to this corporation, when the patriotic law makers of the Congress of the United States saw the light and reached the conclusion that those Gilsonite claims were entitled to patent, and proceeded to enact such legislation as would provide an open way for the Gilsonite Company to acquire those deposits of mineral, the value of which was at least millions, and which under the conservation idea, had been so strenuously denied the individual citizen.

Then again in my own state when I stop to consider the vast areas of coal lands, undeveloped, untouched; and when I consider how the railroads and big combines have already secured sufficient coal deposits to enable them to operate without stint for fifty or a

hundred years; and when I stop to consider the present prices that are being charged the people for that product; and when I stop to consider that the conservation plan of the National government is to withdraw from the market coal lands that have not already been acquired, I cannot help but feel that the effect of such a policy means the monopoly of the coal industry by the present railroads and combines and the prevention of competition on the part of the individual citizen therewith; and that conservation along these lines means the enslavement of the Western people and the retardment of growth of the whole inter-mountain region.

Then again the conservation idea as a governmental policy is being directed to the possibilities for the development of power and light that may be generated by the utilization of the waters of the public domain. This governmental plan of withdrawing these rights so that they may not be acquired by individuals, and of leasing them, appeals to me as being wholly in the interests of those favored corporations that have already acquired the best and most favorably situated power sites that are to be had, and that the individual citizen if he is to compete with these companies and develop these resources must enter this field not only under the disadvantages that now obtain, but that he cannot secure any permanent rights and must submit to becoming a tenant under limitations that would render his investments hazardous. Not only must he pay to the government a rental in an amount that in my judgment would insure failure on the part of his undertaking in order to become a competitor to the already too favored monopolies operating in this field, but he must spend his capital on the less favored, least desired and more expensive projects. If a policy such as this means conservation, then it means that the waters of the public domain must continue to waste until such a time as they may be utilized by those who are to be accorded the superior advantage of a position calculated to ruin every public-spirited individual who may enter the field against them or any competitor who will be so venturesome as to place his money against them under these adverse conditions. Why conserve the waters of the public domain that can be utilized for the development of power, heat and light? If the government wishes to conserve, it should be borne in mind that running water, unless utilized, is waste; if utilized, it produces power, heat and light, thereby conserving coal and the oil of the earth from consumption and preserving them for the generations to come.

Personally, I desire to see the vast resources of the West developed along lines that will render its fields of operations competitive, that will not require contribution on the part of the people to a favored few; on lines that will enable the West to thrive and grow in accordance with true Western spirit and enterprise; and on lines that no one shall be thwarted by special legislation calculated to subject him to inequality in the grand march for future advancement. Personally I know of streams of water in the high mountains that are either under the reservation act or taken off the market entirely where it is almost impossible for coal to be hauled.

It seems to be in cases of this kind it is absurd to say they shall not be used.

We would even make reservoirs above these little plants that would hold back waste waters and bring more land into cultivation.

All these steep mountain streams in the West can be used for power and drop back into their natural course without being a hindrance to irrigation in any sense. In other words, the reservoirs that would be built to protect these plants in times of low water would of necessity help the lands that have no water in time of need.

Our forefathers fought to avoid being leasers. They believed in the principle of individual ownership and rights. They believed in the principle of equality and bled and died for it. Let us keep and preserve our inheritance so costly acquired, and preserve, if we can, that individual independence along commercial lines that will not mean government conservation for the favored few.

Mining As An Investment.

BY JOHN HAYS HAMMOND,
NEW YORK CITY.

The recommendation made by President Taft and Secretary Fisher with reference to the leasing by the Federal Government of the coal lands within the public domain, especially the Alaskan coal deposits, will, I am sure, meet with the hearty approval of the American Mining Congress. I speak confidently as to this because of the fact that in 1905 I was one of a committee appointed by President Roosevelt to suggest revisions in our Federal mining law. We gave considerable study to coal mining, and unanimously recommended in our report that in the future the government should not sell, but should lease, its coal deposits. But unfortunately, for some one of the many inscrutable reasons responsible for the materialization of recommendations of this kind, no definite action was taken by the authorities in Washington to whom our report was submitted.

Our lamented friend Mark Twain once described a mine as "a hole in the ground owned by a liar." I strongly suspect that he was influenced in thus stigmatizing a mine by having dropped money into some "hole in the ground" during his tenderfoot days in Nevada. Unfortunately this definition has gained wide currency and has been accepted by way of consolation by those who have had similar unfortunate experiences in their mining investments.

Now, I have always resented this imputation against the integrity of the honest miner, but in a spirit of compromise have been willing to accept the amended definition of a mine as "a hole in the ground owned by an optimist." The miner is by nature an optimist. It is that optimism—the hope that springs eternal in the miner's breast—which has inspired him with that indefatigable energy and indomitable pluck that has made the miner the pioneer of civilization, and I submit to you gentlemen that such characteristics are incompatible with anything but honesty of purpose.

Take the case of old Jim Wardner, for whom the town in the famous Coeur d'Alene district of Idaho has been named. Not even his bitterest enemy has ever accused Jim of being a liar; nor have his most loyal friends ever denied that he was an irrepressible optimist! The career of Jim Wardner, in common with that of many old-time mining prospectors, was characterized by vicissitudes.

Jim was alternately a millionaire and a bankrupt. At the time of which I speak Jim was in the latter predicament. Meeting a mutual friend on the street one day, he asked for the loan of two hundred dollars to enable him to continue sinking a shaft upon a quartz vein he had recently located. In return, Jim offered to give his friend an interest in the property, and held out the lure by telling him that he was on the edge of a great pay shoot of ore very similar to one of the famous ore bodies that Jim, himself, had discovered in the celebrated Bunker Hill and Sullivan mine. "I feel sure," said Jim, "of all formations, and that I am within three feet of a million dollars." Jim obtained the two hundred dollars, and his friend did not see anything of him until several months afterwards, when he accidentally met him on the street. "Well," said he to Jim, "how is the mine getting on?" "Well," replied Jim, "the last time I saw you I told you that I was within three feet of a million dollars. Now I am sorry to say that the result of my work in the shaft makes me believe that I am at least a million feet from three dollars."

Reverting for a moment to the subject of holes in the ground—and I myself have had considerable experience with holes in the ground, having dug many and having myself fallen into some of them—if the term "liar" is to be regarded as inseparable from a hole in the ground—and for my own part I do not think it is—I would offer the definition of a mine as "a hole in the ground sold to gullible investors by a lying promoter," and that is where I have found in my experience that most of the lying connected with mining comes in.

Now, all this is by way of preface to the consideration of mining investments.

• *Unscrupulous Promoter Should Be Eliminated.*

While I fully recognize its achievements in the past, and while I keenly sympathize with its present earnest endeavors, I nevertheless am of the opinion that by far the best service that the American Mining Congress could render to the mining industry and the investing public would be to exert its powerful and far-reaching influence in behalf of honest mining finance. There is no use trying to blink facts; there is more downright swindling in mining than in any other legitimate industry, and especially is this the case in boom times. Unfortunately the losses in mining usually fall upon those who can ill afford to sustain such losses.

There is not only the opportunity, as I have said, but, in my opinion, there is a duty to be performed by the American Mining

Congress in this connection. I believe that by energetic co-operation with other organizations that have the welfare of legitimate mining at heart the unscrupulous promoter could be eliminated and the public educated as to the nature of mining investments. Indeed, this question would, in itself, tend to the suppression of frauds in mining. Drastic legislation is required in connection with the flotation of mining companies—and, indeed, this applies to many other industrial companies—to compel them to publish before the flotation of the companies reports of reputable engineers—to state the price at which the properties were acquired by the vendors, the amount of the promoter's commission, etc. This is the English law, and it works well there. Furthermore, mining companies, after they have been floated, should be compelled by law to issue full monthly and annual reports as to the financial status of the company, the ore reserves, the condition of the lowest development in the mine, etc., etc. If the pure food and drug act could be applied to mining, so that the investor would be able to ascertain the ingredients of a mine, much poisonous stock would be withdrawn from sale, and honest enterprises would find more money for their development.

"Ten Commandments" for Investor.

First of all, the subject of mining investments should be given authoritative and wide publicity, and the following essential facts impressed upon the public:

First, that a mining investment should not be made by anyone to whom the loss of the investment would involve serious financial distress. Second, that there is an important distinction between investments in mining prospects (which are of a highly speculative character) and investments in well-developed mines. Third, that an investment in a mine differs from other investments in one vitally important particular—that is, the life of a mining investment is relatively a short one, and, therefore, the higher rate of dividends paid does not, in itself, justify the investment.

To this general admonition I would subjoin the following mining "Ten Commandments," under a caption "Don't's."

First, don't invest your money in a mining property solely because a friend of yours—even if he be a blood relation—became rich through some fortunate investment in mining stock.

Second, don't, on the other hand, be deterred from investing in a mining property because another less fortunate friend became bankrupt through some other mining investment.

Third, don't allow any insinuating—not to employ the shorter and uglier term—promoter or mining stock broker to make you

forsake your natural modesty and convince you that because of your success, in your own line of business you are yourself competent to determine the value of a mine. Many men of business ability in their own lines have made trips of self-deception to see for themselves the valuable investments offered them. Motto: "Shoemaker, stick to your last."

Beware Rich Specimens.

Fourth, don't be influenced in your desire to purchase mining stock by the "rich specimens" that the mines have produced, even though you yourself have seen such "specimens" in the mine. "Specimen rock" of this kind is no criterion of the average grade of ore upon which the success of the mine depends. A well-known mining capitalist of a former day was shown some very rich specimens of ore from a certain mining property and asked his opinion as to the value of the property. His reply was: "You might as well show me the hair from the tail of a horse and ask me how fast that horse can trot."

Fifth, don't buy stock in a mine because it has produced a profit of millions of dollars in the past, for obviously the mine is so much the poorer for the millions already extracted.

Sixth, don't purchase stock in a mine because it is in a far-off country, even though "distance lends enchantment to the view." As a matter of fact, remoteness and inaccessibility of a mine should rather make one hesitate to invest.

Seventh, don't buy stock in a mining company solely because it adjoins another mine of great value. This may be interesting but it is by no means conclusive as to the value of the mine in question.

Eighth, above all, don't buy stock in a mine unless you have the unqualifiedly favorable report made by a mining engineer of integrity, ability and experience, and one who has made a success in the investment of money for his clients. An engineer may have the best obtainable technical training, supplemented by considerable practical experience, and yet lack certain qualifications in his professional constitution that determine success or failure.

Ninth, don't buy stock in a mine unless you are sure that the board of directors are honest and competent—because honest and capable management is just as essential to success in mining as it is in other enterprises.

Tenth, in short, don't abandon all your good common sense just because the investment happens to be one in mining and not in some other class of industrial securities.

Now, these remarks are made in no pessimistic spirit, for there is no keener optimist within the bounds of reason than I myself as to the profitableness of mining investments. The suggestions I have made are for the protection of the honest investor and in the interest of honest mining.

While in these remarks I have held out to you the red flag of danger, nevertheless, when the track is clear and in good condition, I have great faith in the safety of mining investments. And speaking with a proper appreciation of the importance of this statement, I have no hesitancy in expressing the opinion that, conducted upon the right basis, and when extended over many operations, there is no business more attractive and more safe than that of mining.

Importance of the Malm Process in the Metallurgy of Complex Ores.

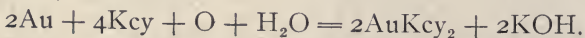
BY A. G. BROWNLEE,
IDAHO SPRINGS, COLORADO.

Before the practical application of cyanide of potassium (K. C. N.) to the recovery of gold from its ores, profitable operation in the gold mining industry was confined to the treatment of such ores as were rich enough to stand the abuse and waste then prevalent under less efficient methods of extraction. The truth of the foregoing statement is sufficiently well established to not require repetition of technical details that are now well understood. However, the radical and welcome change in the profit producing capabilities of the gold mining industry, brought about through the discovery of the cyanide method, had proved of such economic importance that a brief review of its history may be repeated with profit:

Over two hundred years ago (1704) the chance manipulation of impure chemicals resulted in the formation of the first cyanogen compound known as "Prussian Blue." The accidental discovery was made by Diesbach, a color manufacturer of Berlin, who never understood or realized the importance such a discovery would lead to in the science of metallurgy. Diesbach's interests were centered in the dye industry.

Without entering into details of subsequent discoveries and new knowledge acquired, the foundation of which was the chance manipulation mentioned, it may be stated that it was not until seventy-eight years later that Scheele determined the composition of the compound, and succeeded in obtaining an acid from it which he named "Prussic Acid," a virulent poison.

That gold was soluble in potassic cyanide was known to Hagen as early as 1806, and in 1844 Elsner stated that gold and silver could be dissolved in potassium cyanide without decomposition of water, and also that the dissolution of the metals was in consequence of the action of oxygen, which, absorbed from the air, decomposed part of the cyanide, thus forming a double salt-auro-potassic cyanide, which is recognized and known as "Elsner's Equation," as follows:



Four years before Elsner's valuable contribution to the subject, Elkington proclaimed that K C N, *plus electricity*, would dissolve

gold and three years later (1843) Prince Bagration of Russia set forth the fact that K C N alone, *without electricity*, would dissolve gold. That able scientist also contributed further valuable information to the subject which up to that period remained quite obscure. Elkington probably made the first practical application of K C N as a gold solvent. He patented the operation of electroplating in 1840, the process being the same that is used today, with but slight modifications.

For some time after the important work of Elsner in 1844, *strong solutions* of cyanide were used, and it remained for Dr. Henry Wurtz to announce in 1866 in the American Journal of Science that *weak solutions* would also dissolve gold. This was a revelation of the first magnitude in economic metallurgy, and Julio Rae of Syracuse, N. Y., was the first to profit by the increased knowledge of the subject. He applied for a patent covering the use of cyanide in *ore treatment* using agitation to hasten the action, and the patent was granted in 1867. Rae's process, however, was never put to commercial use, and the same remark applies to inventions of others along similar lines which followed in rapid succession, including the more important work of Simpson of Newark, N. J., who obtained a patent in 1865 for separating gold and silver from their ores by the use of cyanide, using an alkali to correct acidity, and precipitating on zinc.

Simpson's claims covered the ground fairly well, nevertheless they brought forth adverse criticism from rival scientists who questioned its commercial value on account of the high cost of the salt used, its instability, poisonous nature, etc. Notwithstanding such criticism, the various steps chronicled, which are only a few of the many that were taken incited other chemists to further work on various cyanite methods which culminated in the English patents granted MacArthur and Forrest of Glasgow in 1887, the validity of which were disputed except in so far as they applied to the precipitation of gold from cyanide solutions by zinc filaments, a strong legal fight being made by the inventors to establish the basic claim of originality in the use of *weak solutions* as having a selective action for gold over the base metals in the ore.

It is not intended to extend these notes to a discussion of the worth, merit or validity of the many patents that were granted in this and other countries, covering claims that were made by the several inventors named, or of important claims of other inventors not mentioned, otherwise this condensed review would develop into a book, the existing literature on the subject of which has already ex-

panded into a fair sized library which may be consulted in detail. Neither is it thought wise to encumber this statement with the details of operation as now practiced in perfected methods of cyanide treatment the development and use of which is directly or indirectly responsible for a fourfold increase in the world's production of gold since the adoption of the MacArthur and Forrest methods less than twenty-five years ago.

The inventions for this process have been many, but the substantial improvements have been few; the process is recognized as the most valuable advance in the metallurgy of precious metals which the world has known, due to the basic principle of getting gold into solution through the agency of an inexpensive solvent. That is the triumph of the art, for by such means control of operation and high recovery of metal value is obtained, which was theretofore unsatisfactory if not impossible in other processes.

Development of Cyanidation Process Gradual.

The history of the slow and measured steps preceding the ultimate development of cyanidation, commencing with a chance discovery, and its dilatory adoption in the art of metallurgy should lead encouragement to present research work along similar lines with a view of demonstrating that *like methods may be made applicable to the base as well as to the precious metals*. It is something important to know that a fundamental basic and economic principle has been discovered even if the details of manipulation remain to be supplied in extending its usefulness, for any process that is sound in theory ought to successfully be put into practical use, and the history recited of the cyanide process, which was first skeptically received, then ridiculed beyond reason, investigated grudgingly, but finally adopted and successfully operated, should teach a lesson that should not be forgotten in the future consideration of other methods that have for their object the brushing away of the cobwebs of metallurgical ignorance and prejudice which too often dominate selfish efforts in last endeavors to bolster up and retain antiquated methods that have been faithfully tried and found wanting.

Years of experience and a plentiful supply of hard knocks have taught the practical mine operator that it needs no Sherlock Holmes to point to the fact that the great problem still confronting the precious metal mining industry is not connected with our economic systems of mining but with wasteful metallurgy, particularly in the successful handling of our almost unlimited supply of complex or so-called refractory ores. The situation cries aloud for improved

methods that will prevent further dissipation of such natural resources, and if the new Bureau of Mines at Washington wishes to add to its glory in the more important work of the conservation of human life, let it next direct its attention and efforts to the conservation of that material so flagrantly wasted in futile attempts to save adequate values from the complex sulphide ores of commerce, the present treatment of which is distinguished by abuse and waste that should be arrested without delay:

In the State of Colorado along such methods of practice have been used so long that all the ores that were rich enough to stand the abuse or which were peculiarly amenable to the methods in vogue, are nearly exhausted, and a sentimental cry has gone forth for the discovery of new mines, the product of which will be rich enough to insure a continuation of the bad practice. And this, too, in spite of the fact that in nearly all the old established camps throughout the state there are almost unlimited supplies of ore already at hand, developed, exposed and ready for handling, but which are not amenable to treatment by those methods which are designed for the extraction of *easy money* without regard for the rights of the producer or the conservation of product.

The intrinsic worth of the ores referred to are as great or greater in aggregate metal values than was contained in the simple ores which have been exhausted requiring only a favorable method of treatment to make them available and profitable, therefore, it is quite plain to see that it is not more mines but improved metallurgical methods that are required to restore prosperity and activity to our languishing industry.

The foregoing recital and remarks may appear somewhat imprudent in view of the ultimate success of cyanide methods as at present established, but, unfortunately, all the skeptics are not silenced. A number remain who will proclaim that they can see no opportunity to extend the use of the principles referred to. With such men the value of a basic principle is not understood, or their judgment is warped and distorted by reason of personal interests in antiquated methods which they are fearful may be disturbed by new knowledge, hence their activity in trying to preserve the dark ages of metallurgical mis practice.

Ores Brought to Surface in Solution.

It is generally believed that nature brought the bulk of our ores to the crevices in the earth's crust, contained in solutions or vapors from which they were precipitated by reason of changing temperature, influenced by local conditions and surroundings. How-

ever that may be, the basic principle of getting metals back into the condition (solution) from which they originated, may or may not have a vital bearing in the success of subsequently recovering them in metallic form, nevertheless, going back to nature's method as against the artificial methods of man, however inventive they may be, is a phase of the situation that is worthy of serious consideration.

The vital question, however, is: Will the problem be solved of saving the values in our complex ores as effectively as it has been solved in cyaniding the so-called straight gold ores?

The answer is: Yes, it will be for the true scientific and technical world has always responded to the demands of industrial economy, and there is little doubt that in spite of the skeptics there is enough serious talent at work to arrive at satisfactory conclusions.

Cyanide lixiviation has but one competitor, chlorination, but both processes are not always adapted to the same ores, so that in many cases they have distinctive fields for exploiting. The history of the present status of chlorination, and of the numerous steps leading up to its present high development, is not unlike the history of cyanidation up to the time when the canny Scotch chemists applied it to practical use in ore reduction in spite of the adverse criticisms that were directed against it.

As early as 1848, sixty-three years ago, Prof. C. F. Plattner demonstrated the use of chlorine as an active agent for the extraction of gold from its ores. Plattner's method involved dead roasting of the ores in a reverberatory furnace, then slightly moistened with water and charged into vats. Chlorine gas generated into another vessel was introduced at the bottom of the vat and allowed to permeate the ore, converting the gold into its soluble chlorides which were dissolved in water and precipitated by ferrous sulphate or other suitable reagents.

This was practically the first "Chlorination Process" and its importance incited other metallurgists to further research.

The use of chlorine in one form or another continued to be exploited and has been the means of adding many millions of dollars to the world's store of wealth, chiefly through its use in chloridizing roasting for pan-amalgamation and hyposulphite lixiviation, and in the vat and barrel chlorination processes, but until quite recently its application has been directed and confined to the recovery of gold *without due regard to the recovery of the base metals which usually accompany it*, the value of the base metals in many cases exceeding the worth of the recovered gold. However, in spite of

the fact that it has long been known that chlorine will break up all the metallic sulphides in a complex ore, it has never been used commercially for that purpose until quite recently, and even now only in a limited way, chiefly by foreign metallurgists. Such disuse is not due to want of efficiency in the agent, but to the lack of practical methods of manipulation in what has heretofore been regarded as a difficult operation.

Contributors to Work.

In a communication of this character space will not admit of a detailed account of the many important steps that were taken in experimental work with chlorine. Its history is almost parallel with that of cyanide, besides, in view of the rejection of many discoveries which proved to be commercially worthless, but which, nevertheless, proved of scientific value in the process of elimination, even a passing notice of such work must be confined to the names of but a few of the principal contributors to the subject and the approximate dates of their operations, as follows:

1848, Prof. C. F. Plattner.

1849, Dr. Dufles.

1857, C. F. Deetkin.

1868, Henry Tindall.

1869, Henry F. Eames.

1872, Milton H. Stowe.

1873, Joseph Kallmes.

1879, Ottokar Hofmann.

About this time the Mears barrel process was introduced, followed by several others such as the Newberry-Vautin, Pollock, Boynton, et al., involving the use of chlorine in both the liquid and gaseous state, generated inside or outside of the barrel and used in connection with a vacuum or under heavy pressure.

1888, Adolph Thies.

1896, Alf. Sinding-Larsen.

1902, Swinburn and Ashcroft.

1903, Maxwell and Sawyer, Baker and Burwell.

1906, William Koehler.

1907, Diehl and Koehler.

1903 to 1907, John L. Malm.

The importance of the work of the several metallurgists mentioned is difficult to determine, for even those who made failures left warning signs in the pathway of those who followed. Thus later investigators profited by example, and avoided pitfalls into which they too might have stumbled.

The field of metallurgical research is strewn with failures, yet it is largely due to the experience and knowledge acquired in such failures that successes have been evolved. Such failures are usually charged to the "mistakes of science," but be it said to the credit of the true scientist that while he makes failures, he is the first to discover and correct them, and even the mistakes are turned to profitable account in the process of elimination for after all a successful invention is a growth not a creation.

Therefore, while we impatiently listen to the criticisms of the skeptic who claims that any process which promises to recover all the metals is entirely too revolutionary in character to merit serious consideration, he must be shown that *the wonderful advance in the art is not revolutionary but evolutionary*, and that he can no longer hide behind the illogical argument that "It is too good to be true."

The Malm Process.

The ore is crushed to about ten mesh, is properly dried and fed to a revolving tube mill, where it is subjected to the action of chlorine gas. The ore is fed continuously into one end of the tube mill and is discharged at the other end. The chlorine gas is admitted by an ingenious device without loss to the tube at the ore discharge end. The ore is kept in contact with the gas long enough to chloridize only from 40 to 70 per cent of the metal contents. By a proper regulation of the ore and gas supplies and the admission of air the temperature due to chemical reaction can be controlled and adjusted. After this partial chloridization in the tube mill, the ore is conveyed by an automatic carrier to a roasting furnace, preferably of the multiple hearth type. Here the partially chloridized ore is subjected to the action of the heat, which is furnished by the burning sulphur. The heat breaks up the iron chlorides irrespective of their condition and liberates chlorine free or as hydrochloric acid, thus *leaving the iron in an inert oxide condition*, thereby eliminating the iron and manganese from subsequent reaction. The chlorine gas or hydrochloric acid thus liberated unites with the sulphides of silver, copper, lead and zinc, forming chlorides of those metals. Simple and effective means are provided to prevent escape of chlorine should the same be in excess.

The ore so treated in the furnace is passed to an agitator to which is added water or mill solutions. As all the reactions involved in the process are exothermic, sufficient heat is generated at this point to make possible the solution of such chlorines as lead chloride. Additional chlorine may be added at this point, if necessary, to bring the gold into solution. From the agitator in which

all the metals go into solution as chlorides, the solution is passed to properly designed filter presses in which the gangue, which will ordinarily consist of silica, sulphur and the oxides of iron and manganese, is retained.

The solution containing the chlorides passes from the filter presses and is agitated in the presence of metallic copper, which precipitates the gold and silver, which is parted by the usual method and cast into bars.

The solution from which the gold and silver has been removed is decanted and agitated in the presence of metallic iron, which precipitates the copper.

The solution is then agitated in the presence of metallic zinc, which precipitates the lead, and, if necessary, it is agitated in the presence of zinc oxide, chlorine gas and sulphur dioxide to remove iron, manganese or lime, which may have entered the solution either on account of insufficient decomposition in the roasting furnace or through the substitution method employed in the precipitations referred to.

The solution after the above mentioned treatment contains only zinc chloride in solution, and when this solution through successive cycles has reached a sufficient concentration of zinc chloride, it is passed to vacuum evaporators in which all trace of moisture is removed, fused and run into electrolytic cells. Here the electric current is applied, which deposits the zinc in metallic form and liberates the chlorine for refuse, the entire loss of chlorine in the complete cycle of operation approximating about 2 per cent. The zinc cells are operated at a temperature of about 450° C., and the gas escapes from the cells at a temperature approximating the above figure. This chlorine gas is passed under the evaporators, thereby supplying heat for the evaporation, and also partly cools the gas, which is essential before reusing it in the tube mill. The various precipitates of gold, silver, copper and lead are separately collected in filter presses, dried, melted and cast into bars ready for shipment. The molten metallic zinc is tapped from the electrolytic cells at regular intervals and run into molds.

Simplicity Proper Word for Malm Process.

The foregoing brief outline includes operations the successful manipulation of which will doubtlessly be challenged by the metallurgist whose knowledge is limited to European difficulties and practice. For the information of such, it may be stated that Mr. Malm does not lay claim to originality or anything new in the chemistry of the process, but it must be quite plain to the student that he has

devised new chemical applications and perfected mechanical manipulation in a marked degree to come within the scope of simplicity thus outlined. Simplicity is the proper word which described the culmination of Mr. Malm's laborious work, extending over a period of several years in this country and abroad.

Naturally he has been materially assisted by the more recent manufacture of improved apparatus which has lately become standard in such chemical work, nevertheless he was compelled to "scrap" many thousands of dollars' worth of apparatus and machinery before finding the article suitable to continuous usage. As a typical example of the elimination of such difficulties, it may be stated that in his first experimental mill, located at Corbin, Montana, much fragile and delicate earthenware and porcelain apparatus was used, including breakable valves, stopcocks, etc., used in conducting or controlling chlorine gas. In the large commercial mill which Mr. Malm is now constructing for the Western Metals Company of Denver, located near the town of Georgetown, Colorado, all conduits of gas are safely and securely laid in and below the surface of the concrete working floors, and there is not such a thing as an earthenware, porcelain or hard rubber valve or stopcock in the entire plant. Simple oil and water-locked switches, diverted by means of "U" tubes made of lead and ordinary rubber hose fitted with wooden pinchcocks, solved such difficulties in an effective and economical manner.

The foregoing is but a fair example of one of the several perfected and improved mechanical methods that have been devised by Mr. Malm to bring the heretofore complicated operation within the range of simplicity and durability. There is now no department of the plant, which is very nearly completed, that cannot be successfully operated by unskilled labor, superintended by one competent manager, assisted by one skilled chemist.

The change or play between the "ic" and "ous" chlorides of iron, manganese and copper are of vital importance in the operation, and Mr. Malm has mastered a *control* which not only eliminates many difficulties heretofore encountered, but he has done it in such a simple and effective manner that it appears difficult to understand why the discovery was not made long ago. Retrospection, after the thing is done, is quite simple, but it took patience and skill to do the real work. The play referred to has much to do with the clarification of complex solutions which have always been a bugbear to the metallurgist, but the abnormally high recovery of all the metals by substitution and precipitation, except zinc, which

is recovered electrolytically, clearly proves that Mr. Malm has solved the problem in a very effective manner, practical in its application. There are so many important details of manipulation that have been simplified and made practical that space forbids a technical description. Suffice it to say that they have been carefully examined and passed upon by independent engineers and metallurgists of national reputation and sound judgment, who have pronounced the complete operation as the most simple and economic method that has been devised in commercial metallurgy since the advent of cyanidation, over which chlorination now promises to have a much wider field of usefulness.

Costs.

From sixty to seventy per cent of the cost of operating this process is for electric power, *depending very largely upon the metal contents of the ore to be treated*. Direct current at relatively low pressure is used for the electrolytic work, which *applies to zinc only*, and the consumption of power varies with the zinc, or zinc equivalent, contents of the ore. In practice an actual recovery has been made of 14.2 to 14.4 pounds of zinc per horsepower day, therefore, with electric energy at a cost of \$50 per horsepower year, or sixteen cents per day, the cost of converting zinc chlorides into metallic bars of a premium brand would amount to but a small fraction in excess of one cent per pound. Such brands of electrolytic zinc are now being manufactured abroad under chlorination methods of a more complicated character than the Malm process. They are exported and sold in New York City at as high a premium as two and one-half cents per pound in excess of New York quotations for spelter, which is an impure produce of the smelters.

It is only claimed that not less than 90 per cent of the values of *all* the metals may be recovered from an ore by this process. However, actual practice on a tonnage basis has shown that a much higher saving may be made, and the following example of the reduction of a very difficult refractory ore will serve to illustrate the recoveries obtainable:

CRUDE ORE.			METAL EXTRACTION.		
Assay.	Price.	Value.	Per Cent.	Weight.	Value.
0.18 ozs. gold @	\$20.00 per oz.	= \$3.60	90	0.162 oz.	\$3.24
13.97 ozs. silver @	.50 per oz.	= 6.98	91.6	12.796 ozs.	6.40
4.78% lead @	.04 per lb.	= 3.82	97.4	93 lbs.	3.72
0.68% copper @	.13 per lb.	= 1.77	99.3	13.5 lbs.	1.75
9.00% zinc @	.05 per lb.	= 9.00	94.2	169.5 lbs.	8.47
Average		\$25.17	93.68+		\$23.58

The average cost of handling this ore *from mine to market*, including all charges, was as follows:

PER TON.	
Mining, development, tramming and general expense.....	\$ 4.00
Entire cost of treatment.....	5.32
Royalty85
Handling and loading product.....	.05
Freight charges.....	1.68
Marketing charges.....	1.02
Miscellaneous65
Total	\$13.57

The average profit per ton was \$10.01.

By present methods of concentration followed by smelting and refining, the *gross* proceeds on this ore were \$10.75 per ton, while the *total costs per ton were \$8.85, leaving a profit of but \$1.90, or \$8.11 in favor of the chemical process*, an increase in profit of 400 per cent.

The cost of treating an ore of the composition mentioned, *containing only one per cent zinc*, would be \$2.44 per ton, increasing about 36 cents for each additional one per cent of zinc. However, costs in this process are not generally calculated per ton of ore treated, which are quite variable, depending almost entirely upon the metallic contents and composition of the crude ore. They are usually determined upon the number of pounds of metal recovered, thereby showing the true economy of the method. Straight lead or copper ores, *without zinc*, cost considerably less.

Advantages of the Process.

1. Applicability to about 90 per cent of all ores.
2. Special applicability to ores heretofore regarded as too refractory and complex for any known treatment.
3. Elimination of ore dressing and mechanical concentration with their extravagant losses.
4. Elimination of fire methods with their attending sulphur and arsenical fumes, consequent litigation and high smelter charges.
5. The complete and economical passing into solution of *all the metals*.
6. High percentage of recovery.
7. Low cost per pound of metal recovered.
8. Comparatively low cost of installation, considering the completeness of the process.
9. Simplicity of operation.
10. Products in marketable condition.

Mr. Malm's valuable work has been carried along the line of *true conservation*, viz: *Utilization without waste*. Under his

methods no one metal is sacrificed to save another, but all the metals of commerce in the ore are recovered, *including the heretofore despised and much penalized zinc*. The mechanical losses encountered in the work are only those which cannot be prevented in any operation, however perfect it may be. If it is not perfection, it is at least the highest point that metallurgical skill has reached in this field of operation, and its ultimate value and importance is difficult to foresee or estimate. It promises to become as important a factor in the extraction of all the metals in complex ores as the cyanide process has proved in the treatment of straight gold ores.

Workmen's Compensation.

BY JOHN H. JONES,
PITTSBURGH, PA.

In presenting the results of the labors of the special committee appointed to consider, and report upon, the subject of a workmen's compensation act, I desire to call to your attention some of the things which form the basis of the reasoning of your committee, and to submit the same for your approval.

The subject of employers' liability and workmen's compensation, in one form or another, has agitated the minds of men for years. Individuals, corporations, states and nations have studied, conferred, and sought solutions. The justice of it all is generally conceded, and American industry is still seeking the best direction to which to move to accomplish the object of its faith.

The coal mining industry is no stranger to either "liability" or "compensation," nor did it wait for law to suggest, demand, or compel a reasonable care, in one form or another, of those injured in the pursuit of the industry.

That the mining industry has its many problems is not only known to you, but is well evidenced by the birth, development, and achievement of this Congress, and the best testimony in evidence of the value and efficiency of the Congress is this present meeting, its splendid program, and its large and representative character.

It is natural then that a subject of so vital importance to the industry should engage the serious attention of the Mining Congress, first through a special committee, whose report is in print, and now presented for your present consideration, discussion, and approval.

In order to provoke full discussion, the chairman of the committee desires to present this paper as a brief supplement to the printed report.

One of the most important points in the whole matter, upon which this Congress should fully inform and declare itself, is to decide upon the best direction to follow in working out a solution best adapted to the mining industry. On this point we have the experience and opinion of practical men in this and other countries. It has been stated that what has been done in England, and what has been done in Germany, are the most important types of action

on this subject which we can study. Therefore we will call upon some representative gentlemen to present their experience and views; first, Mr. A. H. Gill, Member of Parliament, of Balton, England, and Secretary of the Operative Cotton Spinners' Association. Mr. Gill says, in substance:

"In England, before the eighties, the common law was the only means of adjustment between the injured and his employer; when negligence of the employer was not apparent or proven it was hard to get compensation. The work-people became dissatisfied and began to agitate for a new law, and, as the result, an employers' liability act was passed in 1880, and while it was an improvement on the common law, the act was not a success, as it embodied the doctrine that an employer should not be liable unless negligence was proved, or if the workman had been guilty of contributory negligence. It has, always, been difficult to succeed in an action under the act as so many means could be found of resisting a claim. The result of the failure to secure compensation caused a further agitation for an improved method of dealing with the problem. This agitation bore fruit for, in the year 1897, an act was passed known as the workmen's compensation act. This act did away with the doctrine of contributory negligence and made the employer liable to pay compensation to a workman who lost time through any accident which occurred while following his employment. At first it applied to certain classes of workers, namely, railway workers, miners, and those engaged in occupations to which the factory and workshop act applied. This last mentioned act created many anomalies, this made necessary an amending act, which was passed. In the year 1906 the present workmen's compensation act was passed and it is a great improvement on the previous one."

Twenty-Six Years Perfecting English Act.

It is not necessary to enlarge upon this act, but simply to draw to your attention and emphasize the fact that 26 years of agitation by workmen, and 26 years of study, and experiment, by practical men, resulted in a *workmen's compensation act* that is an improvement over all previous acts. In closing his remarks Mr. Gill says: (in 1909)

"The act is a good one. It has very largely solved a knotty problem. We are not likely to go back on it, and I think that you would be well advised in giving it a careful study."

This opinion is fully confirmed by Attorney Packer, of Washington, D. C., who was retained by the United States Government to investigate the English Compensation Act and conditions in the United States.

Another opinion dated Washington, D. C., December 24, 1910:

"The Illinois Legislature should enact a liberal Employers' Liability Act at the special session and *then undertake an investigation with a view of the introduction of an automatic compensation law, for THAT view observers now regard as the most feasible and just solution of the vocational ills, accidents and deaths.*"

(Signed)

SAMUEL GOMPERS,

President Am. Fed. of Labor.

And another:

"In spite of the fact that every one of the industrial nations of Europe has discarded the system of paying damages on the ground of the liability of the employer, and has adopted in its stead the payment of compensation for industrial accidents; *in spite* of the fact that New York has adopted a workmen's compensation act, and that both Wisconsin and Minnesota are considering compensation as the only feasible solution of this problem, the Chicago Federation of Labor and its representatives on the Commission have taken a decided stand that the abrogation of the employers' defenses must precede any bill providing compensation.

"It is evident from the letter which the Federation submits, that its officers are not only unfamiliar or unmindful of the economic waste involved in any employers' liability system, but that they have no knowledge of the total inadequacy of such a system, even when extended by such serious modification of the employers' defenses as the American Federation of Labor advocates.

"An employers' liability law meets none of the prime necessities of definite compensation, immediately and automatically paid. Under it every case is a gamble."

Signed by the six "Employer" members of the commission of twelve, Illinois Employers' Liability Commission.

Again, *Major A. R. Piorkowski*, representing the Frederick Krupp Company of Essen, Germany, and speaking for the German system—

"The German accident insurance had its predecessor in the *Liability Law of 1871*, by which the operators of industrial establishments were liable for the accidents caused by them. The injured workmen had to bring proof that the operator caused the accident, and the amount of compensation was determined by private societies. It is evident, that such an institution could satisfy nobody. The consequences were long drawn out, and costly law suits, by which the contrasting interests of employers and employe were glaringly brought to light.

The more law suits between both classes, the more hatred and the less understanding there were for what was mutual in their interests. Employers, employes, and the Government looked eagerly for a better solution of the problem. Germans have been called a people of thinkers. They thought, and understood why the liability law did not answer the purpose, did not work for peace between capital and labor. It worked unjustly toward both of them. An accident would not be an accident if it could be foreseen, avoided or prevented. The accident is an inevitable incident of the trade. It is not due, legally speaking, to the carelessness of the employer. Nor is it due, legally speaking, to the carelessness of the employe. It just happens. It can only be put to the imperfections and perils of the trade. Therefore, the only logical and just way to compensate for the injuries done is by insurance.

First, they proposed compulsory insurance, through an imperial financial institute, that contributors should be employers and the insured.

The Reichstag refused this plan.

Then the central association of German industries recommended the accident insurance.

The place of an imperial insurance was taken by the trade associations of the employers.

Instead of contributions by the employers and communities came the burden of the first 13 weeks to be borne by the sick funds, to which the workmen had to pay nearly 67 per cent.

The administration remained with the employers.

The arbitration courts consisted of employers and employes in equal numbers.

In 1900 this law received its present shape, briefly—

All workmen and administrative officers, the latter provided their annual earnings do not exceed 3,000 marks, are insured against the results of accidents in the course of their employment, if employed in mines, factories, and similar establishments specified in law.

In case of disability, compensation is rendered from the beginning of the 14th week after the date of the accident.

The injured person receives free medical treatment, medicine and other means of healing.

The accident associations are self administrative. Their internal administration is regulated by a constitution, enacted by the general meeting. The law says what the constitution is to specify.

The constitution becomes valid when approved by the imperial insurance office.

The general meeting of the association establishes the risk tariff for the different factories, etc., according to the degree of accident risk, and the amount of contribution accordingly.

This tariff risk is to be revised every five years and approved by the imperial insurance office.

If any gentleman present imagines that the German system would be a success in this country, let me quote from the New York Commercial of Friday, October 20, 1911—(4 days ago)—under the heading—

"Liability Men Criticize State Insurance System."

After much discussion and an attack upon the suggestion of Governor Woodrow Wilson, as to state accident insurance, it reads:

Nearly every speaker alluded to a recent review of the German state insurance system, written by Dr. Ferdinand Friedensburg, who has recently retired after 20 years at the head of the senate of the imperial insurance office of the German Empire. 'Dr. Friedensburg does *not* find the German system, as it has worked out in practice, by any means ideal. He does not condemn the principles underlying the workmen's compensation for accidents.

Dr. Lott quoted him as saying that charity crept in and corrupted the system at the beginning; that "workmen very soon got accustomed to bringing their complaints, doubts and claims of any nature whatever to the imperial insurance office, often without appealing to any intermediate instance," that the imperial insurance office, which is intended to handle questions of law, is overburdened with frivolous and unfounded claims; that "the expenses of the system continued to grow as the force required increased"; that "the number of officials in the imperial insurance office has multiplied in tune with the ever-waxing burden of work"; that "the number of accidents grows with monstrous speed"; that "in 1886 100,159 accidents were reported and 10,540 (10 per cent) compensated; in 1908, 652,321 accidents were reported and 142,965 (21 per cent) compensated"; that "often an accident is sought for and arranged"; that "sometimes a chronically sick man swears that his old illness is the result of a recent accident and gets consequential help"; that "the communal chiefs act entirely under the belief that they ought to help their local residents, as a result of the common opinion that the insurance funds have more money than they know what to do with, and this idea strikingly deadens the conception of legality and love for the truth"; that "naturally the universal laxity,

the payment of unjustified claims, and the extravagance practiced justified claims, and the extravagance in equipping hospitals and sanatoria impair the integrity of insurance funds"; that "employers do all that is possible to escape their burdens, which they feel to be unjust and in vain enormous sums are annually extracted from them in fines," that "industrial unions and insurance institutions have been repeatedly on the brink of bankruptcy.

Dr. Friedensburg points out that the excessive cost of the insurance system, which is one result of the degradation of the system into charity, is complained of by employers, and that state insurance, therefore, reacts injuriously upon Germany's industry.

He says: "As a result of the costs of insurance, which have gradually become monstrous, German industry is put at a disadvantage and is hampered to the extreme in its competition with foreigners."

Caused Rise in Prices.

Indeed, Mr. Friedensburg makes the astonishing statement that the German system of workmen's compensation is held responsible for the marked rise in prices which is felt to be oppressive by all classes of the German population.

Mr. Wolfe is of the opinion that whether the state will undertake the employers' liability business to the exclusion of the companies depends upon the attitude of those companies and their disposition to co-operate with the state in the solution of the economic problem. He said that employers' liability insurance represents more than one-half of the entire liability business transacted and consequently the question of state insurance is of vital interest to the underwriter.

While heretofore the question may have seemed to the underwriters a fad or a form of socialistic doctrine and an interference with the right of contract, a discourager of thrift and an encourager of maligning and intentional accidents, public opinion is overwhelmingly in favor of entering the cost of human accidents as a part of the cost of production, and the underwriters, in the opinion of the speaker, must face the situation accordingly. Mr. Wolfe believes that a desirable law would embody the following features.

First. A statement of the circumstances under which the employer becomes responsible for an accident during the hours of employment.

Second. A definite scale of benefits to be paid by the employer when he is responsible.

Third. A requirement that every employer to whom the law applies shall file with the commission, mentioned hereafter, satisfactory evidence that his responsibility for the payment of benefits for which he becomes responsible is guaranteed by a corporation authorized to transact the business of liability insurance.

Fourth. The appointment of a commission (some of the members of which should have a knowledge of the technical side of employers' liability insurance) which would classify risks, and would, after the necessary investigation, fix the minimum and the maximum rate which would be charged any corporation authorized to furnish the guarantees.

Fifth. A provision that the commission may, after hearing evidence, order the installation of proper safety devices in order that accidents may be prevented as far as possible.

Sixth. A provision that those employers having more than a certain number of employes may, instead of becoming insured in a private company, elect to deposit with the state the minimum premium required by the commission, which deposit is to be increased from time to time as required by the commission, in order to cover the present values of benefits to be paid, and is to be withdrawn on filing with the commission satisfactory evidence that the deposit is not required for the payment of claims.

Mr. Rowe stated that obviously the trouble with state insurance, viewed from an impartial angle, would be the mixing of politics with it. "Workmen's compensation insurance," he said, "can only exert its effect as a blessing if free from all exaggeration and particularly from the conscious or unconscious love-making with the 'lower classes.'"

"Such insurance," he said, "must be issued by an independent institution free from all partiality."

* * *

Employers and employes should not lose sight of the fact that less than 50% of the premiums paid goes to the real beneficiaries. Whether or not this may be considered economic waste is for others to judge.

Here, then, are introduced two methods, one the "Employers' Liability Act," which has been discarded by practical men, the other the "Workmen's Compensation Act," now before us, and between these two we are called upon to choose.

Your committee urges a workmen's compensation act as best fitted, by experience and practice, to the mining industry.

The liability act appears, to your committee, to be unjust and unreasonable, in principle and in practice—the very mention of it suggests lawyers, courts, delays, annoyance, strained relations, expense to employers, and loss to workmen. In one word, it means “fight.” The compensation act means “payment.” The former is an unknown quantity; the latter is a fixed principle known and computed in advance, and provided for. The record of the liability act is said to be about 50% adjustment—the compensation act means 100% adjustment.

Adjustment under a liability act is reported by one large coal operator to be injurious in 80% of cases in a large disaster, in that it would shower money into the hands of the inexperienced, where value is unknown, and where money and widows are soon parted. That this is no idle dream is no doubt known to every man here, and the speaker has had enough experience to “fill a book.” Just one experience will suffice to illustrate. During the past two years a certain widow, of a miner, received a so-called liability adjustment. Two of the first purchases made were a gold watch and a silk dress, which added to other things made the expenditure for the first month \$900.00. She spent over three thousand dollars a year for these two years, and now finds herself and five children objects of charity. Surely it cannot be argued that this is the compensation intended. True, it was her inexperience and failure to value money that worked the mischief. This is the very thing we argue. This woman is a fair type of those with whom the mining industry has to deal, and the illustration is from life and by no means an isolated case.

Under the compensation act no such temptation would have presented itself—the adjustment would have simply continued the natural earning and pay conditions for a period of years, insured the woman against her own inexperience and extravagance, insured to the children the real object of the act, and be a blessing to the family and to the community.

Liability law adjustment, in the judgment of the committee, is a mistake—is uncertain and unreasonable—is an injustice to all concerned, and is prejudicial to all the best interests of a miner's widow and children—that it defeats a good intention, and does *not* insure the care, education, and opportunities of life, supposedly vouchsafed, to the husband and father, by a law which caused him to risk and lose his life in an honest belief, and a sincere endeavor, to provide for his family. In short, it looks as though the most

ardent supporters of an employers' liability law, are ambulance chasers and those who could hope to profit by a disturbed condition, as between capital and labor.

It may not be out of place to again quote from the remarks of Mr. Gompers, who says: "As a principle, compensation is wisest, is best, and more economic, and would not tend to disturb the relations between the injured workman and his employer, as does liability." Surely no one will argue that the best interests of the workman are overlooked in this opinion.

As to the question, Who should pay the cost? there is no need to take up your time in argument. It is conceded to be a legitimate charge on industry, and that every industry ought to bear its own cost.

Liability Act Wrong in Principle and Practice.

It is also conceded that labor is just as necessary for the maintenance of industry as any other commodity, and that the cost of compensation, as a fixed principle of industry, should be reckoned with in placing a price upon the finished product. Upon the grounds stated we believe the liability act to be wrong in principle and practice, and that the injustice of it falls upon those who are least able to bear it, on the one hand, and, upon the other hand, this injustice would fall upon those who are supposed to be wealthy, which supposition is based upon opinion thoroughly unfamiliar with the facts, and therefore incompetent, an opinion of those who do not stop to consider whether or not the cost of their wishes is within the possibilities of the industry, or to take into consideration the fact that not one out of ten coal companies could stand the cost of some of the disasters which have occurred during the last few years, under a liability act, or the further fact that less than ten per cent of the coal companies have as much money invested as the cost of some of the mine disasters of the past three years, and that a liability act would bankrupt ninety per cent of the companies should this class of disaster visit their mines. Surely such a law would endanger the industry, and therefore cannot be the sober judgment, or even the sincere desire, of either workmen or employer.

The mining industry should stand ready to bear the burden of its own accidents—it should stand ready to pay a tax of one cent per ton of coal mined to meet the necessities of the case and to provide the necessary funds.

It should stand ready to have this fund administered wisely in the interests of the workmen and their families.

It has always stood ready to consider, and has introduced every known precaution to prevent these accidents, and to safeguard every man employed above or below the ground.

It considers all this right, reasonable and just, and that the best direction to move in, to accomplish best results, is the passing of the workmen's compensation act.

This consideration of the subject is not based upon selfish or narrow motives. The company I have the honor to represent operates in five states—the cost, to our company, under this act, and which act it approves of, will mean fifty to sixty thousand dollars a year, and it is only one of many, all of which goes to show that the industry is actuated wholly by humane motives, and a sincere desire to squarely meet the conditions of the times, therefore the honesty of the mining industry view of the matter must be self-evident to every right thinking man.

In the preceding argument we have referred to the best direction to move in to accomplish the best results, and have clearly stated our reasons in favor of the compensation act. There is another important point to consider with reference to this act, namely, the mining industry must give its best thought to the method of introducing and passing the act—it cannot be left to the unfamiliar majority. The combined co-operative influence and wisdom of this Congress is vitally necessary to guide public opinion and legislators in this important matter. The necessity for reasonably uniform legislation by the different states of the Union must not be lost sight of. Uniformity of legislation on all subjects of common interest is one of the most important questions of the times. It was the Hon. Seth Low, President of the National Civic Federation, speaking upon this question, who said:

“If one industrial state makes a change in the law of master and servant, or of negligence, it may unwittingly greatly endanger its manufacturing industries, but if the competitive industrial states will move correspondingly along the same lines, no one of them is likely to be endangered, and the whole country may be benefited.”

And, along the same lines, it was Senator Root who said:

“The time has come when each state must legislate on matters of common interest from the point of view of one of a family of states, rather than from the point of view of an individualism that is self sufficient—the people of the country have grown together in so many ways, without regard to state lines, that, unless fairly uniform

legislation can be had upon a constantly increasing number of subjects, the demand for action by the central Government is likely to become irresistible, and, in time, even to require an amendment of the Constitution of the United States to give to the central Government the power the states fail to use for the common benefit."

It is to bring about just this uniformity that we recommend to this Congress the appointment of a general committee, and we might go a little farther than the printed recommendation and have this committee consist of one man from each of the several states, this general committee to have charge of the enactment of the law presented by the committee, each appointee to act as chairman of a committee of five within his state, composed of himself and four other members, charged with the duty and responsibility of seeing to it that the state legislatures of those states shall pass this law.

The necessity for careful study, for the wisdom which comes from the multitude of counsel, and for definite and determined action, is clearly evident.

The American mining industry should here go on record as favorable to that solution of this problem which is right, reasonable and just to the industry, to the employer, and to the employe.

A law that strikes at the life of the industry will be a calamity.

A law that does justice to employer and employe, that operates, and compensates, without delay, friction or loss, will be a blessing. May the "wisdom which cometh from above" lead and guide us into that which is best.

Workmen's Liability Insurance.

BY C. O. BARTLETT,
CLEVELAND, OHIO.

During the last few years, and especially the last year, very much has been said about workmen's liability insurance, and quite a number of our states have enacted laws pertaining to this important question. The bone of contention is,—Who shall pay the bill? It is certainly very nice for every workman in a mine, factory, or on a farm to have a workman's insurance policy, and especially would this be true if somebody else paid the premium.

There seems to be a sort of general opinion that insurance companies are robbers, that they have made vast fortunes out of the employers' insurance business, and if the state or general government would go into this business, the rate would be very much less. Now the true facts of such matters, judging from the past, are that all business done by a city, state, or general government costs nearly twice as much as when done by private corporations or individuals, and we see no reason why there should be any variation from this general rule in the insurance business, and I think it is fair to assume that when any state, or the United States as a whole, get into the liability insurance business, the cost will increase the same as it has done in other lines, and the idea that a lot of money will be saved is only a myth.

In taking up this question, we should consider, and consider most carefully, that where there is one large mining corporation or other corporation, there are hundreds of smaller ones doing business in every state, and I wish to speak especially of these medium sized corporations or companies. The large companies like the Philadelphia & Reading Coal & Iron Company, the United States Steel Corporation, the Pittsburgh Coal Company, the Standard Oil Company, the International Harvester Company and some others of similar type control very largely the selling prices of their products; in other words, when they say thumbs up, up they go, and when they say thumbs down, down they go, but the medium fellow, with competition on every corner cannot do this, and if we add to the expense of these companies, even at the rate of 1% a year on the capital stock, it will mean just as sure as the sun will rise tomorrow that thousands of them will go to the wall.

To illustrate this fact, let me state that two years ago the state of Ohio, which is one of the largest manufacturing states in the Union, one of the best located for manufacturing purposes, with plenty of coal at a low price and of a good quality, with cheap iron ore of a good quality, the best of water and rail transportation facilities, the best of farming lands from one end to the other to supply bread and meat, and perhaps more advantages than any other state in the Union, put a tax of 1/10th of 1%, that is a special tax of 1/10th of 1% on all corporations, and last year they increased this by 50%, making a yearly tax of 1½ mills on every dollar of the capital stock. In other words, a company of \$60,000 capital stock is now compelled to put into the State treasury as a special yearly tax \$90 per year. This may seem like a small amount, but last spring more than 1200 of the Ohio corporations were delinquent in this special tax, the delinquency amounting to more than \$2,000.

To further illustrate, if a tax of one cent a ton were put on all coal mined in the United States, it will mean very nearly 1% on the selling price of all the coal mined in the United States, and according to Mr. Parker, the output of coal in the United States in 1910 was 501,000,000 tons, and at 1c a ton means over \$5,000,000. I do not hesitate to state that the 33 million tons of ore mined in the state of Ohio last year did not pay dividends to the owners of the mines of more than 2% and a tax of 1% would mean ruination to very many of them, for we assure you that a great many mines in the state of Ohio are earning extremely small dividends.

According to this same report by Mr. Parker, the average price of bituminous coal is a little over \$1.00 a ton. Now then, it has never been estimated by any actuary that the Workmen's Liability Insurance tax against any mining or other company would be less than this amount, and probably it will be very much more, possibly 200% more; in fact, we are told by insurance companies that it will be fully this much and we have no reason to believe that the insurance companies are liars. At any event, so important a measure as the workmen's liability insurance should receive the most careful consideration.

When we look at it carefully and boil it down, it simply means this: that all workmen in mines and factories will have a liability insurance policy, so that in case of accident they shall draw a certain amount a week, say 60% of the amount of their wages; that in case of death, their families will draw a certain amount a week up to a certain maximum, say three or four thousand dollars.

So far this seems easy. It is certainly a mighty good thing for each workman to have an insurance against injury or death, but from here on comes the question,—Who shall pay the bill? Naturally the workmen are anxious for the employer to pay the premium, and naturally the employer is somewhat loath to do it. We must not forget the fact that over 80% of the men engaged in business, mining or other kinds of business, do not meet with success. Again, I wish to say to the miners and manufacturers that if it is legal to insure the workmen in the mines and factories throughout the cities and towns, it is equally as important to insure the workmen on the farms.

There seems to be a sort of a prevailing idea that mining is a very dangerous occupation, yet statistics show that mining is far less dangerous than a very large number of manufacturing industries. By statistics given by the government, it is found that in the state of Pennsylvania mining is about one-thirtieth as dangerous as making nuts and bolts. It is not more dangerous than railroading and only half as dangerous as farming. By such statistics as can be had in this country, and especially in Germany, more than 45% of all the accidents happen on farms, and there is no question whatever in my judgment but what farming as it is carried on at the present time in the United States, with its improved machinery is far more dangerous than mining. Now if it is necessary to protect the fellow in the mines, at the bench or forge, why is it not equally as well to protect the man on the farm, behind the plow, or behind the corn shredder and anything that protects one without protecting the other should never be sustained by any one court and I hope it never will be.

Very much is being said about the high cost of living. There are two very important reasons for this; one the scarcity of water. When the rain fails to come, the corn, wheat and vegetables wither and die. The other reason is the scarcity of farm labor throughout the entire country. You cannot expect the boys to remain in the country and work twelve hours a day for a dollar and a half or less when they can get two or three times this amount in a mine and work six or eight hours a day, or in a factory and get at least double the amount. Now if we throw in an insurance policy besides, it will add to the burden.

That all manufacturers of the United States are very much interested in this question and are very anxious indeed to have some law enacted, there is no question, and I feel sure I am speaking the sentiments of a very large part of the manufacturers in the state

of Ohio when I state that they do not feel as though they should pay the premium. It seems to me that the only just way to do this is for the employer to pay half and the employe pay the other half and let the general government, either State or National, bear the expense of the burden of carrying out the provision of the law.

The true object of a liability insurance should be to prevent accidents and from an experience of many years, I feel absolutely confident in making the assertion that if any mine or factory insures its employes and pays for the entire insurance, that the number of accidents will increase very rapidly indeed; in fact, I haven't the slightest doubt about it, but if you say to the workman, you pay half of this and I will pay the other half, then you will have prevented to a very large degree all accidents, for the reason that the workmen will be equally as interested and will try in every way to prevent accidents as well as the employer.

Another very important measure, and we think by far one of the most important of this whole question, is that this will bring the employer and employe to a very close and very friendly relationship, and that is one of the great questions which the manufacturers are trying to solve today, for say what you will, we are all in the same boat and should work in harmony as much as possible.

It is a terrible thing for the head of any mine or factory to learn that one of his workmen has met with a serious accident, possibly one or both legs broken, and you can rest assured that every one of us are only too glad to do anything in our power to prevent these things, but we fully realize, however, that accidents will happen, that they always did and all it is possible for any man to do is to prevent them as far as possible. In other words, I wish to emphasize the fact that prevention should be the main object in any workmen's liability insurance law. That should be the goal at all times, in all places, and under all conditions.

Very much has been said about the splendid laws regarding liability insurance in the Old Countries, and especially is this so regarding Germany. One would almost believe by hearing some of the addresses and by reading some of the articles of the magazines that it was almost a paradise to work in Germany; that it was next to a front seat in Heaven, but like all other questions, there are two sides to this one, and the other side we don't hear so much about. They do not tell us that the taxes in Germany are two and sometimes more than four times as much as they are here; that is, the direct tax, and then there is another tax there, too, in this great

Germany, a tax that is far more mighty than dollars and cents, and that is that every boy must be taken from his home and give five years of his time to the army. Will you just for a moment consider what this tax would mean to you and to me? Just as your boy or mine is ready to enter college, how would you like to have the government step in and say: "Here, Charlie, or William, you come with me for five years; I want you?" and he has to go. Now, then, if an observing man knows anything, he knows that army life is very bad for a young man and I am told by good authority by some of the men who have been through this army in Germany that many of the good, moral boys, in fact the majority, that enter the army come out very bad men at the end of their term, and I say right here that if there is any one thing that I am thankful for, it is that we do not live under such laws as they have in Germany.

But let us go a little further into these wonderfully good laws of Germany. One would almost be led to believe than many of the workmen would immediately go back to work under these favorable conditions, but how many mechanics from your town left for Germany last year? I venture to say that you would count the number on your four fingers, and I can furthermore venture to say that then you can divide it by four and in many cases you can subtract one from this amount. On the other hand, how many of the workmen from that country have come to this country to better their conditions? Over one hundred and eighty thousand German people came here last year, and they have bettered their conditions, and we are very glad to see them and want them to come.

In Germany the employers only pay one-third of the cost, and I repeat that we should consider and consider most carefully before we burden our mining operators and manufacturers with the tremendous cost of Workmen's Insurance. If this agitation and legislation against the business industries of our country keep on the the rate they have for the last two years, very serious consequences will surely come and this country will realize that we have killed the goose that laid the golden egg.

The Federal Investigation of Ore Treatment Problems.

BY W. N. SEARCY,
SILVERTON, COLO.

It is rather embarrassing to me to undertake to discuss a question of this character which must naturally touch upon some of the technical phases of mining, when I myself am not actively engaged in the actual business of mining. I am interested in mining property; all that I have is invested in the mining country. I represent men who are engaged in mining; and, therefore, have been selected by some of my friends in Colorado to undertake to tell you a little about this subject. I will ask that you bear with my want of oratorical talent, for I hope that whatever may be lacking in oratory may be made up by the appeal which the plain facts concerning the mineral industry itself must make to your sound judgment.

If the Federal Government takes hold of this proposition to solve the treatment of ore, it will deal only with general problems; it will only undertake the more intricate and difficult problems, and, therefore, it will be working not for any one section, but for the people of the United States. I take it that this mining congress itself will not take up any sectional issues, and while in undertaking to discuss this subject, I shall refer to some sections of the West, perhaps to some sections of Colorado, I wish you to understand, in fairness to this convention, that I refer to those localities only as illustrations; for Illinois and Michigan and Utah and Missouri are interested in this problem in the same way as is Colorado.

Our President's address, as delivered to you this morning, goes quite fully into the foundation for asking Federal help in the solution of these questions. He has explained to you very fully the work which has been performed by the agricultural experiment department of the United States. He has shown you how valuable that work has been, and the tremendous amount of good that has been accomplished. I will not repeat that part of the argument. What Mr. Dern has presented to you upon that subject should be enough. Now, in order to consider whether the Federal Government should undertake to help solve these problems of ore treatment, it is necessary first to consider to a limited extent the importance of the industry itself. If you will take the eleven states

situated west of the Eastern Colorado line, you have the distinctively mountain states of our country. If you will add to them the territory of Alaska, you have what may be called the metal mining section of our country. This is not because Missouri does not produce more zinc than some of those states, nor because Michigan does not produce more copper than some of those states, but because in those western states the mining industry is the basic or foundation industry. Mining in those states and territories bears the same relation to general industry there that manufacturing does to general industry in New England, or cotton raising to the industry of the South. Furthermore, if it were not for the mining industry existing in large sections of these mountain States their progress would be very materially handicapped and their final development would be greatly limited. I desire to give you a local illustration: There is a section in Colorado known as the San Juan Mining district. I want to use it as an illustration. That territory is formed by the crossing of the great Continental or Rocky Mountain Divide, by the San Juan Range of mountains, thus creating a large and very precipitous mountain country. For instance, in my little county there are probably 20 or 25 mountains rising to 13,000 feet elevation, and our engineers tell us that if the entire county were leveled down it would all stand above the timber line. Silverton, our county seat, has an altitude of 9,000 feet—up so high that summer heat is unknown. Now that territory itself covers practically three thousand square miles of country, that is, the mineral section alone is the size of Delaware and Rhode Island combined; but the important thing is that all of that territory would be vacant, all that territory would be idle, all that territory would be practically useless and unoccupied were it not for the mining industry. That same condition exists in Utah; it exists in Idaho; it exists in all of these Western states that I have mentioned, and if the mining industry is not to be protected and preserved, we are going to leave a great portion of the western section of the United States practically unoccupied. We cannot afford, as citizens of the United States, to neglect or overlook any possible measure or step which may make that portion of our country populous and prosperous. But that is not even the most important prosperity phase of this subject. While I have mentioned to you a mining district in Southwestern Colorado, as an illustration, which covers three thousand square miles of mountain territory, I wish to state that south of that territory is a farming country which is fertile, well-watered, capable of producing almost any

product of the temperate zone. Now that farming territory, including therewith the mining section, covers an area of 20,000 square miles, and extends into the southeastern part of Utah, the northwestern corner of New Mexico, and it extends far eastward in Colorado. Now that agricultural territory of 20,000 square miles is equivalent in size to Massachusetts and Connecticut and Delaware and New Jersey combined. It is capable of supporting hundreds of thousands of people. Yet that agricultural territory, under present conditions, would not know prosperity if it were not for the mining cities up in the mountains which make a market for the agricultural products. I desire to use this illustration to show you by a concrete example the importance to Colorado and to Utah and to Nevada and to Idaho, and to every other State, of preserving and conserving the interests of the mining industry itself.

Now it goes further than that. In the state of Colorado, and, I dare say, in Utah and the other Western states, the mining industry forms the basis for the best market that the coal miners themselves know. We have a great deal of coal in that country, as you have here, but it takes the mining industry to stand in the place of your manufacturing and transportation industries of the East.

Another idea that is worth considering. That western country that I have described, including Alaska, covers nearly one-half the entire area of the United States. Alaska alone is equivalent to five of the largest states you would be likely to name, excluding Texas. That big western section should not be brought into competition with the eastern agricultural sections, when by proper encouragement of the mining industry in that western metal-producing country, it will provide its own market and prevent agriculture of the West from competing with and injuring agriculture in the East. Now this is only a general consideration of the importance of the mining industry in that western section alone. The same considerations apply in a general way to the metal mining industry in Illinois, in Missouri, in Wisconsin, and other states.

The metal mining industry has another phase more important than mere present property for our generation. Something has been said about conservation. Now, I may not agree entirely with the views recently expressed concerning conservation, but I certainly do agree to some extent; and that is to say that true conservation should be a conservation which saves for the people and not one which denies use to the people.

This is pre-eminently the age of metals. It is the age of electricity. It is the age of invention. It is the age of speed. It is the age of machinery. Fifty years ago if you had been sitting in this hall and holding a convention and a neighboring building were being erected you might have heard the blows of the carpenters' hammers. Today, a building is being erected there; and somewhere away off in another part of the city there is situated a tremendous plant involving tons and hundreds of tons of iron and steel and copper in its construction. From that plant run electric wires, involving more tons of copper, out through the city, until they ramify every street and avenue in the metropolis. One of those wires is attached there on the side of the new building to some kind of an electric machine. The building itself is of steel. The machine that makes the noise is of steel, copper and iron, and instead of the whack of the old-fashioned hammer, you hear the vibrations of the machine hammer riveting beam upon beam and erecting a structure almost wholly composed of metal. Yet the giant steel frame you view from the window is merely an ordinary business building of this day. That building is only an illustration. We have passed by the old days of wood and stone. The cradle and the coffin are made of metal. The conveyances that we ride in along the street and the pleasure boat are made of metal. The man-of-war and the fortress resisting the guns must be made of steel.

Mining and Agriculture Equally Important.

As our chairman told you in his very able address this morning we are coming to the place where people will realize that mining, in its broader phases, and agriculture are but two equal supplemental divisions of the industry of our Nation, one as important as the other.

The Government geological report for 1909 shows that in 1880 we used substantially \$185,000,000 worth of metal produced from our storehouse. By the year 1900, twenty years later, that had increased to \$511,000,000. In other words, after allowing for all reasonable change in the price of the commodity per pound, in twenty years we more than doubled the demand upon our storehouse for the use of metal therein contained; and in 1909 we had reached something like \$750,000,000 annual production, proving that by 1920 we will again have doubled the demand upon the storehouse for the use of metal.

Now I do not believe it would be conservative or sound to say that we are rapidly approaching the place where metal cannot

be found, nor that we are immediately going to exhaust that storehouse. I do not believe that we have reached the place where any calamity views need be entertained, but I do believe we have reached the place where common sense and sound business policy should call upon the people of this Nation to use every reasonable endeavor to see that the metal extracted from the earth each year is put into form where it will be saved and used, and not wasted. That is the problem that is brought before you today. These Western States that I have mentioned and the territory of Alaska produce substantially \$250,000,000 worth of metal each year. This \$250,000,000 worth, of course, includes silver and gold, and it is only fair to state that in certain sections of the country, like Cripple Creek, the miners have been able to effect a fairly successful saving of gold and silver contained in the ore, possibly 90%; more probably an average of only 85% of the silver and gold contained in the ores bearing only those two products. But that is not the problem. The problem that arises in those mining sections is in treating what we call refractory or complex ores. The big veins cutting through the mountains contain lead and zinc and copper and iron and manganese and quartz, and perhaps a half-dozen other metallic contents, combined in almost every conceivable form and proportion; and these big low-grade veins form the solid permanent basis of the mining industry. Now, when you realize that a lead smelter cannot treat zinc, but must burn it up, and that a zinc smelter cannot successfully treat other metals, you will readily realize the difficult problem which is immediately presented to the man who is grinding that ore and sending it to the market. In this class of ore, known as refractory, or complex ore, I believe it is safe to say that in the average low-grade mining district the saving effected in the course of milling does not exceed 70% of the value of the contents. Seventy per cent saving necessarily means a 30% loss or waste, because as a general rule the tailings from the mill go into the streams or are scattered over the surface of the earth without being in any way conserved. Therefore, the loss that is suffered is a permanent loss.

It might be well to explain that in the low-grade mining districts of Colorado, Utah, and other states, where the veins are known to occur, these low-grade ores in general carry values of from \$4 to \$20 per ton. Now when you consider that these metallic contents are included along with quartz, or other material constituting one-half or two-thirds of the total tonnage, and when you take into consideration the railroad freight that must be paid

per ton and the rather high charge that must be imposed by any smelter that undertakes to treat ore containing so much silica, you will readily realize that the miners cannot ship that crude low-grade ore to a smelter and have it successfully treated. Therefore the burden is imposed upon them of first separating out the silica or the quartz contents in connection with their ore. Next they must confront the problem of undertaking to separate zinc away from the lead, copper and iron, and at the same time try to save the gold and silver value; so that when they market their product they may be able to send the lead and copper and iron to what is known as a lead smelter and the zinc contents of the ore to what is known as a zinc smelter. This presents a complex and difficult problem. I suppose there are a hundred different forms of mills or of machines or of contrivances that have been invented for the purpose of separating and treating these ores. Some are fairly successful in some branches of the industry; but no general solution of the problem has yet been presented. I believe it is safe to say, as I have told you, that the loss in this branch of the metal mining industry will equal 30% of the total product brought out of the ground.

Losses of Rare Metals in Mining.

A further illustration of these losses may be found in the case of certain rare metals. For instance, in one county in Colorado it was discovered a few years ago that minable quantities of tungsten existed. The miners there concluded that they would try to produce tungsten commercially. They found very substantial deposits of that metal. They proceeded to produce the metal, produce it commercially, and I understand they did so at a profit. But in producing the tungsten, as far as I have been able to learn, not less than 30% produced from the ground is lost in the course of milling, before the concentrates are shipped to the market.

Another illustration of this same loss is in the vanadium deposits also found in a southwestern county of the same state. Vanadium is used in hardening and toughening certain varieties of steel and also for other purposes. It is a valuable metal, rather a rare metal. Now in the production of this vanadium which has been found in that county it is reported that one company takes out that ore, ships it all the way across this country and across the ocean to Liverpool, in order to have it treated. The saving in Liverpool may be very good, but there is but little saving to the industries of our country in paying such freight, besides the treatment charge. Another company is undertaking to treat the vanadium on the ground by a process, as I understand, devised by their

own metallurgists. It is stated concerning their own home treatment that the loss is at least one-third of the valuable metal which they have found, saving only two-thirds.

Another loss which is worth noticing in the metal producing industry of the west is that of sulphur, arsenic and manganese and other similar materials, and chemicals of various kinds and character. These are disregarded because at the present time there is no profit in undertaking to save them. It is all right to talk of conservation, but no private citizen can afford to spend his own money and operate at a loss for the purpose of trying to conserve the natural resources; and it is only by the discovery of means which will enable him to conserve the natural resources while working at a profit that any miner will invest money in saving or producing a metal.

Now as a final effect of this loss in the treatment of the western metals, I believe it is fair to estimate that the \$250,000,000 worth of metal marketed by those western states and Alaska, represent also an actual loss of metal which is not marketed, of at least \$50,000,000 per year in the lead, copper, zinc, gold and silver alone, besides all the possible by-products. Then when you consider the further loss, say ten or fifteen per cent, in the treatment of the simple gold and silver ores, and when you consider the further loss that is probably encountered in such states as Missouri and Wisconsin and Illinois in the treatment of any zinc or lead ore which happens to be in the leastwise complex, I believe it is safe to say that there stands here a problem of loss to our nation of at least \$100,000,000 per year of metal valuable in our industries, and which some day will be indispensable to our industries. This is the problem that this congress, as I understand, proposes to present to the Federal Government; and it would certainly seem to be worth while for the Federal Government to interest itself in the solution of that problem.

Now we have reached the point, in trying to discuss this question, of considering what it is proposed to ask the Federal Government to do. I believe there has been more misunderstanding, more misconception of this, not necessarily of the problem, but of its possible method of solution, than any other question that has come before this assembly. If you will stop and study the problem for a moment you will readily realize that the problem is not one to be solved by the United States Government erecting a building like this, for instance, and setting up machinery there and shipping ore to that building to test it by that machinery. Why, if the Gov-

ernment had such a machine today it would send it out to Colorado and Utah and mining would go right ahead. We would make other machines just like it. The trouble is that there is no such machine in existence, for the mechanical saving of these metals. If there were, it would be patented by some private individual and he would make a million dollars a year out of it; or if he did not patent it, every mine in the states of Colorado, Washington and Idaho would be using that one contrivance. Therefore, it is not a question of trying to procure the United States Government to erect a plant in Denver, nor in Salt Lake, nor in San Francisco, nor anywhere else. The problem is of such a nature that it is going to take years of work by the best metallurgists, by the best scientists, by the best chemists that our Government can afford to employ. I believe that the final solution of this question will be a chemical and electrical solution and not a mere mechanical solution; but the work that is to be done must necessarily be done right down in the field where the metals exist.

Department of Mines Needed.

We need a department of mining of the United States, to be given money to commence on this work. An appropriation of at least \$500,000 should be made for Dr. Holmes' Department, so that he can commence upon the investigation of this problem in every mining district of the west. I do not mean by that each little isolated section, but each considerable section which appears to have problems peculiar to itself. In that way in your State of Utah you would be able to have a representative of the United States Government go in there in your district, analyzing your ore, watching the effect of each milling process that you are trying to put into effect and he would finally, after a few months' study, be able to make a complete analytical report, not only upon your ore, but upon your processes, and your saving and your problems. The same thing could be done down in the San Juan or at Aspen, or up in Idaho, or in other mining sections. Then after the local or field experiment station work has progressed until some definite information has been obtained to be written down and compiled and printed as a general working basis, field experiment work would probably be undertaken. Until you have reached that stage, there is little necessity for a central plant; but after you have reached that stage then you can locate your central plant at any point convenient for the mining section; and then you will know for the first time what you actually want in that central plant or what could be devised for it.

In the report of our President, in his address this morning (and which I believe will become as important as any public document which has been promulgated in our country for years) he has outlined to you very clearly the work undertaken and accomplished by the Agricultural Department. I believe it is safe to say that the agricultural experiment station work of the United States has saved millions of dollars to the farmers. There is every reason to believe that if the work of the Federal Government is broadened out, the same kind of work, or the same plan, can be instituted, in the mining department, and just as great results will be accomplished; and there is some reason to hope that the results may be accomplished even more speedily. In the agricultural problems the question is generally a matter of long observation, of culture of plants, of watching the habits of insects, and of progress from year to year in undertaking to better the conditions of the industry. In other words, it is a culture or growth rather than a solution of a problem. While in the metal industry these problems are in general few in number, and though difficult of solution, yet they are closely related to each other, and when the solution comes the remedy will be immediate and complete. I believe more is to be accomplished in the metal mining industry by the Federal Government, for the same amount of money expended, than can be accomplished in the agricultural department. Now if the Federal Government by the investment of a few hundred thousand dollars in establishing these experimental stations, first in the districts that need them most, and later in any district in any state where a substantial saving to the people may be effected, if the Federal Government, by such limited investment, can save one-tenth of what is now going to waste of those metals, is it not worth while? \$10,000,000 saved by a few hundred thousand dollars investment, should be a sound investment, whether for the Federal Government or any private industry. If the Federal Government can be so successful as to make a complete success in the solution of these problems, we have here presented, which are only a part of the problems of the industry, then it will mean a saving to our nation of at least \$100,000,000 per year.

Nation Would Be Benefited.

Now I believe that every patriotic citizen of this country views with approval the appropriation by our Congress of nearly \$100,000,000 for the purpose of supporting the army, that is, just so long as that army is necessary; and I believe that every patriotic citizen likewise approves the appropriation of something like \$125,000,000

by Congress for the support of the navy, so long as such a navy is necessary. But I want to ask if it is not sound business as well as sound government to make a limited appropriation for the purpose of conserving and saving and producing the metals with which the armies must be equipped, with which the navies must be built, with which homes and cities and industries must be founded. The first effect of any such a move by the government would of course be a profit to the metal mining industry; but I have tried to show you that it is a foundation industry, a basic industry, in these western states, in Illinois, in Missouri, in Michigan, wherever metal is produced; furnishing the market to the agriculturalist who stands by ready to supply the provisions; furnishing the market for the factories of the east that must furnish hundreds of articles to every mining section of the western part of the nation. There is something more about this. The Federal Government by undertaking such a campaign as this is not only bringing profit to the industry, it is not only improving the condition of every state which has the industry, it is conferring a direct and substantial benefit upon the whole people of America. Wherever an industry is enabled to produce at a less cost, or what is the same thing in the operation of an industry, if it is enabled to save the entire product instead of losing one-third of it, then the natural, the inevitable, result will be that the industry itself will be satisfied to take a less proportion, and the people at large will receive the final product of that industry for a less price. Today your price of copper, your price of lead, your price of zinc is fixed by the necessary charge on it in order to have it produced at a profit. If the United States Government can so far help the miners, those who are mining and treating this ore, that they can save the entire metallic contents of the ore, more metal will be produced from year to year with the same work, and the people of the United States will receive a fair share of the benefits at a reduction in price, yet the industry itself making the reduction will not lose, it will receive enough to make it prosperous.

As an illustration of the mining benefits to the whole people, I want to call attention to the tungsten production for one county in Colorado. Because it found it could produce that article commercially and profitably, it produces 80 per cent of the tungsten of the United States. That would appear to mean profit to that county alone; but it does not work that way. The county does receive profit, but the tungsten is used to double the durability and value of steel, a certain class of steel that is needed by the people;

and now that it has become cheap enough, tungsten is used to make the filaments in the electric lamp, and in turn in every home throughout the land the amount of illumination through the electric lamp for the same cost of power, for the same expense, is practically doubled through the use of the tungsten filament. The same effect is brought about by the successful mining of vanadium. Now they have been able to reach a stage where they save two-thirds of the vanadium, and by using an exceedingly small proportion or fraction of one per cent of vanadium in steel, it seems to double the value of certain high speed tool machines by doubling the durability. In other words, the benefit comes back to the whole people.

Annual Waste of Metals Totals \$100,000,000.

I do not wish to take more of your time, I believe that the members of this convention do not need to be persuaded to vote for a resolution asking Congress for a liberal appropriation for the purpose of enabling the metal miners of the United States to save that \$100,000,000 that today is lost. That metal loss is practically a permanent loss. Now, we hear a great deal about conservation. The term is used every place it will apply, and sometimes where it won't apply. I want to tell you, however, that in comparing the conservation of timber and of metal there is something that is well worth considering. If the timber in a certain area of the country be destroyed or be used up, it is possible to re-forest that entire area with better trees than grew there before in 60 to 70 years. In other words, while it is right to save the trees, yet if we do happen to use up the timber in a certain district the loss is not beyond remedy; it is not one from which we cannot recover. But when we waste the fifty to one hundred millions per year of zinc, lead, copper, tungsten, besides the gold and silver, its loss is practically irretrievable. It is a loss that can not be replaced; and it is not too much to say, when we are doubling the output of these metals every twenty years, that whether or not there is danger that we are going to run out of the metal, it certainly is sound, common sense for our Federal Government to cut off that loss if there is any possible way to do it at any reasonable expenditure. As I started to tell you, I believe it would not be necessary to persuade any member of this convention to vote for such a resolution, but we ask you to do more than vote here. I believe it is the duty of the members of the American Mining Congress when they return to their homes, to take up this question with their congressmen and with the friends of their congressmen so that the great metal mining industry (which to a great extent forms the basis of a successful coal mining

industry) so that this great metal mining industry may be placed upon a sound and prosperous basis, where the products extracted from the earth will be saved for the benefit of our people and given to them instead of being wasted.

Just one more suggestion on conservation. It may be right in trying to conserve timber to restrict the use of that timber, but in trying to conserve metals I believe that it is not the right method of conservation. If you extract the metals, such as copper, from the earth and put them in the form of bars, they are practically as indestructible above as they ever were below the ground. The right conservation of metal is not to prohibit the people from freely using metal or to try to impose leasing systems or restrictions upon the metal miners so that they cannot mine the metals. The real conservation of metals is to see that the entire metallic contents of the ore mined is saved and put into form where it is practically indestructible for all time.

If the Federal Bureau of Mines shall lead the way in solving these important existing problems of the metal mining industry, it will thereby increase the general prosperity of the mining states, promote the welfare of the principal industries throughout all the states, and effect a tremendous saving in the permanent wealth of our country.

Portland Cement and Cement Resources of the Southern States.

BY T. POOLE MAYNARD,*
ATLANTA, GEORGIA.

The first Portland cement mill established in the South was that of the Virginia Portland Cement Company, at Fordwick, Va., in the year 1900. During the year 1901; the Southern Cement Company at North Birmingham, Ala., began the manufacture of Portland cement from granulated slag and hydrated lime. Three plants were put into operation during 1903—the Buckhorn Portland Cement Company, in West Virginia; the Southern States Portland Cement Company, in Georgia, and the Texas Portland Cement Company, in Texas. In 1904, the only plant in Kentucky was constructed.

The production of Portland cement in the Southern states until 1906 was practically negligible. The Standard Portland Cement Company in Alabama was completed in the year 1906, and during this year seven mills produced 1,804,643 barrels, constituting 3.9% of the total output in the United States. During 1907, the Dixie Portland Cement Company of Tennessee and the Dewey Portland Cement Company in Oklahoma were established, and eight of these plants produced 1,814,470 barrels, or 3.7% of the total output. During 1908, the Security Cement and Lime Company in Maryland and the Oklahoma Portland Cement Company in Oklahoma began operations, and eleven plants produced 2,204,840 barrels, or 4.3% of the total output. During 1909, the Southwestern States Portland Cement Company in Texas was constructed, and in this year twelve plants produced 3,811,498 barrels, constituting 6.1% of the total output. During 1910, the Atlantic and Gulf Portland Cement Company in Alabama, the Southwestern Cement Company in Texas, and the Norfolk Portland Cement Corporation in Virginia all began operations, so that fifteen plants produced 5,717,959 barrels, or 7.9% of the total output. The Tidewater Portland Cement Company in Maryland, the Clinchfield Portland Cement Corporation in Tennessee, the Piedmont Portland Cement Company in Georgia, and the Choctaw Portland Cement Company in Oklahoma will all be completed during 1911. When these mills are completed, together with the increase in the capacity of the mills in the Southern states now being operated, the

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daily capacity of the Southern mills will be 44,880 barrels, so that the annual capacity will be more than 16,000,000 barrels.

Maryland has two plants; Virginia, two; West Virginia, one; Kentucky, one; Tennessee, two; Georgia, two; Alabama, three; Oklahoma, three, and Texas, four. Missouri has four plants, and in the year 1909 the value of Portland cement produced in this State amounted to more than two and one-half million dollars. However, according to the distribution of plants by the United States Geological Survey, Missouri is included along with those of the Central states.

Geographic Location of Cement Materials of Southern States.

Maryland, Virginia, North Carolina, South Carolina, Georgia, and Alabama occupy three distinct physiographic provinces, i. e., the Coastal Plain, the Piedmont Plateau, and the Appalachian Area. This latter area is subdivided into the Appalachian Mountains, the Appalachian Valley, and Cumberland Plateau. The cement materials occur in both the Coastal Plain and in the Appalachian Area, while they are seldom associated in the Piedmont Plateau. Each of the physiographic provinces are characterized by distinct geologic formations, and it is through a knowledge of stratigraphy, namely, the study of the lithology and the sequence of formations that the geologist is able to determine the possibilities in undeveloped regions, and to make known the tonnage available in development, which is one of the most important factors to be taken into consideration in the location of plants.

West Virginia, Tennessee and Kentucky occupy portions of the great Appalachian Valley and the Cumberland Plateau, and Kentucky and Tennessee extend over into the great Mississippi Valley. Cement materials are found throughout these states.

Florida, Mississippi, Louisiana and the eastern part of Texas lie wholly in the Coastal Plain, and are characterized by rocks of post-Paleozoic age. Oklahoma lies in a separate physiographic province west of the Mississippi. The most important cement materials are found in the Paleozoic.

The Geology of the Cement Materials.

The Southern states occupy a territory which is characterized by a great variety of calcareous and argillaceous materials eminently suitable for use in the manufacture of Portland cement. The prime factors to be taken into consideration today in the establishment of cement mills are (1) the location of the raw materials in close proximity with a suitable fuel supply, (2) adequate transpor-

tation facilities and (3) good markets. The same factors have been of first importance in the production of pig iron, and it is on account of the association of the raw materials with the fuel supply that the South occupies such a prominent position today in the manufacture of iron and steel. It will be shown below that the raw materials used in the manufacture of Portland cement, along with a suitable fuel supply, occupy a greater area, and are of greater geologic extent in the South than in any other section of our country.

The pre-Cambrian rocks have been so altered from their original character through the agencies of diastrophism and metamorphism that we do not expect to find materials contained in these rocks which will become available for use in the manufacture of Portland cement. The Cambrian formations contain both limestones and shales, but on account of the great changes which have taken place in these rocks they are seldom available for use. Where the Cambrian limestones have been recrystallized into marbles, retaining their high calcium character, and where the shales have been little altered chemically, they may be found suitable.

The Ordovician was a period of great limestone deposition, and the argillaceous limestones of the Ordovician provide the raw materials for the greater quantity of the American Portland cement produced today. During Silurian time, the deposits in the Southern Appalachians consisted essentially of shales and sandstones. In the Northern Appalachians, rocks of more than a mile in thickness constitute the next succeeding formations above the Silurian, namely, the Devonian, and they seldom contain rocks suitable for use in the manufacture of cement. This great thickness of rock separates the shales and limestones of the Silurian and the great limestone deposits of the Ordovician from the overlying Carboniferous, which contains the only available fuel supply. The Devonian rocks thin out toward the South. The Carboniferous rocks in the South contain not only the coal deposits, but also great thicknesses of limestone and shale and lie almost immediately upon the shale deposits of the Silurian, and in close proximity to the limestone deposits of the Ordovician. On account of the great thickness of the Devonian and the scarcity of the cement materials in the Carboniferous in the Northern Appalachians it is readily seen why plants have not been located where the raw materials are in juxtaposition with the coal deposits, while in the Southern Appalachians the cement materials of the Ordovician and Silurian lie in close proximity to the fuel supply contained in the Carboniferous.

Less is known regarding the cement materials of the Coastal Plain than of the other physiographic provinces. Considerable stratigraphic work has been done in many of the Southern States, both by the United States Geological Survey and the state surveys, but with a few exceptions detailed economic study of the cement materials has never been taken up. The Miocene marls and Quaternary clays are suitable for use in the manufacture of cement at many localities in Virginia. In Alabama, the Selma Chalk and residual clays occur together, and are known to be eminently suitable, while in Texas calcareous and argillaceous materials in the upper Cretaceous afford the source of most of the cements.

Fuels of the Southern States.

The areas designated as the Eastern and Lehigh districts include plants in Pennsylvania, New Jersey, New York and Massachusetts. In this whole area the bituminous coals underlie only 14,200 square miles, and the coal fields are confined entirely to Pennsylvania, and can supply the Northern portion of the Southern field as cheaply as the states which lie to the north of Pennsylvania. The Southern states are underlain by 80,866 square miles of bituminous coal, and the 23,000 square miles of coal in Missouri is within easy reach of the Southwestern states. The Central states contain 101,320 square miles underlain by coal, including Missouri. When the location of a mill in relation to the fuel supply is taken into consideration it is readily seen that the South contains an area seven times as great as that of the Eastern states, and as great an area as the Central states.

In Alabama, Mississippi, Louisiana and Texas the lignites underlie broad areas, and they are being extensively used in Texas at the present time as a fuel supply for the manufacture of cement.

The Value of Portland Cement in 1910.

The average price per barrel of Portland cement in 1910, according to the figures reported to the United States Geological Survey for gray Portland cement was 88.9 cents per barrel, and \$2.86 per barrel for white Portland. This represents the value of the cement in bulk at the mills including the labor cost of packing, but not the value of the sacks or barrels.

The average price of Portland cement in the Lehigh district in 1910 was 72.7 cents per barrel; in the Eastern states the average value was 75.7 cents per barrel; in the Central states the average value was 91 cents per barrel. In other words, the Southern oper-

ator receives 21.3 cents more per barrel for his cement than the operator in the Lehigh district; 18.3 cents more than the operator in the Eastern states, and 3 cents more than the operator in the Central states. It is evident from the above facts that the operator who can produce cement in the South as cheaply as in the Lehigh district has a considerable advantage. The extreme Western states have not been discussed, as they are not competitors with the plants east of the Rocky Mountains.

Individual States.

Maryland was the first of the Southern states to realize that a careful stratigraphic study of her argillaceous and calcareous materials would be of the greatest value in the subsequent investigation of her undeveloped cement materials. It was largely through these investigations that she has today two Portland cement plants.

Maryland has 445 square miles of coal. The close proximity of the calcareous and argillaceous materials to one another and to a suitable fuel supply, together with her excellent railway and ocean transportation facilities to ready markets combine to make her ideally situated geographically for the distribution and cheap production of cement.

Virginia is underlain by 1,900 square miles of coal, 150 square miles of which lie in the Richmond basin, 200 square miles in Montgomery County, and 1,550 square miles in the Appalachian area. Virginia is fortunate in having available cement materials in the Coastal Plain in close proximity to the coal deposits of the Triassic.

West Virginia has 17,000 square miles of bituminous coal, besides great areas containing gas and oil. The association of the raw materials with the great fuel supply assures her a bright future.

Kentucky is underlain by 16,670 square miles of coal, 10,270 square miles of which occupies the Eastern Area and is a part of the great Appalachian field; 6,400 square miles of coal occurs in the Western Area and occupies a portion of the great interior field. Little detailed knowledge is at hand in regard to her cement materials.

Tennessee is underlain by 4,400 square miles of bituminous coal, and contains great areas of limestone and shale in close proximity with the coal deposits.

The investigation of the cement materials of Georgia is now under way, and the detailed economic study of the whole of North Georgia will be completed in the spring of 1912. The investigation shows great quantities of cement materials in the Carbonifer-

ous, the Silurian and the Ordovician. The coal fields of Georgia occupy 167 square miles, and the coals of Tennessee and Alabama are available.

Alabama has 14,430 square miles of coal associated with suitable limestones and shales, and the lignite deposits of her coastal plain may make her cementing materials in this area available.

Oklahoma is underlain by 10,000 square miles of coal, besides great quantities of oil and gas in close proximity to her cement materials, and with further development in transportation facilities her future in the manufacture of Portland cement will be very great.

Texas has 8,200 square miles underlain by bituminous coal and 2,000 square miles underlain by lignite, and is fortunate in having the fuels associated with available cement materials.

North Carolina, South Carolina, Mississippi and Louisiana have no cement plants at present. However, as the demand becomes greater and the raw materials in these states become better known development will follow.

It is easy to draw conclusions from the facts presented. The future development of the cement industry depends on the same factors as that for the manufacture of pig iron and steel. In no other section of the country is there such a vast area where the calcareous and argillaceous materials occur together associated with such a great fuel supply. For this reason the South is likely to surpass all other sections in the manufacture of Portland cement.

Some Reflections on the Disposal of Public Coal Lands.

BY DR. JAMES DOUGLAS,
NEW YORK CITY.

President Roosevelt in a message to Congress on December 17, 1906, on the subject of the public land laws, says:

"The present coal law, limiting the individual entry to 160 acres, puts a premium on fraud by making it impossible to develop certain types of coal fields and yet comply with the law. It is a scandal to maintain laws which sound well, but which make fraud the key without which great natural resources must remain closed."

Five years have passed since then, but beyond indicting men, innocent and guilty, as malefactors, and withdrawing coal lands from entry and exploitation, no remedy has been applied which would cure the evident defects in the coal land laws. We all know the particular provisions under which in the past entrymen could secure coal lands at a price of \$10.00 to \$15.00 per acre, depending upon the distance of the coal from a railroad, and the absurd restriction of 160 acres of land, on which coal was proved to exist, to each entryman, and that at the utmost only two entrymen could combine to work in common. It was a crime under the act for an entryman to secure possession with the intention of selling; though of course when the land became his, under patent, he could dispose of it as he might see fit.

In any revision of the coal land laws, three questions will have to be considered:

First. The quantity which should be allotted to a single entryman or corporation.

Second. The terms under which government should part with their coal resources, whether by out and out sale, by lease, or on payment of a royalty.

Third. The price which should be paid either by a purchaser, or a renter, or a worker on royalty.

The decision of these questions is more or less interdependent. If a certain amount of coal must be secured in advance to warrant the expenditure of the capital necessary to mine the coal, and to handle it as coal or coke commercially when brought to surface, and if this outlay is to be repaid, with a reasonable rate of profit to cover interest and risk, the operator must start with the prospect of a certain minimum supply of coal. What that acreage

should be depends upon the size of the beds, and the initial outlay to utilize to the best advantage the property.

In order to get material for discussion I will take as data for the initial solution the production per acre of coal and the expenses incurred in erecting the plant of the Stag Canon Fuel Company at Dawson, New Mexico. The mines and plant of the Stag Canon Fuel Company (formerly the Dawson Fuel Company) were purchased by the present owners in 1905. The mines had been opened in 1902, and in addition to the mine equipment a wooden washery and 125 beehive ovens were erected.

The surface area of the property owned by the Stag Canon Fuel Co. is 52,152 acres. The coal is assumed to underlie 35,028 acres. Since the mine was opened in 1902 there have been extracted 6,981,220 tons of coal from a seam which varied in thickness from four feet to seven feet. The area worked over is 960 acres. Yet in reality this coal has been extracted from 650 acres. The difference between 650 acres and the total acreage worked over represents unprofitable ground, through faults, pinching of the coal seam or decline in the quality of coal below a profitable margin.

The production of coal and coke of the Dawson Fuel company and its successor, the Stag Canon Fuel company, has been as follows:

Year	Tons Coal	Tons Coke
1902 May to Dec.....	97,840	4,133
1903	371,774	30,325
1904	380,664	39,308
1905	508,008	57,357
1906	663,142	85,211
1907	871,101	165,975
1908	850,318	230,756
1909	1,032,239	283,964
1910	1,302,092	298,685
1911 to June 30.....	483,321	129,351
Totals	6,560,499	1,325,065

Two Thousand Acres Explored.

Approximately 2,000 acres have been explored. One of the drifts from No. 2 entry extends for a distance of one mile from surface to an air shaft from surface. In addition, two diamond drill holes have been extended from the surface through the coal bed. One in Section 27, Township 29 North, Range 20 East, with a depth of 217 feet, shows only three feet of coal; the other hole in Section 34, Township 29 North, Range 20 East, at eighty-three feet depth, shows two feet and two inches of coal. We have determined, there-

fore, that our thickest coal bed, adjacent to its outcrop, has yielded 7,350 tons per acre; that 30% of the ground worked over has been unprofitable, and that boreholes show a decrease in thickness as the principal seams extend under the range.

It would probably, however, be fair to assume, from our experiences and that of others, taking into account the eventualities already encountered by us, and the risks of mining from explosions and other accidents, that as depth is attained the quantity of coal in this or any large given area of unexplored coal lands should be reduced to one-half of its maximum proved quantity, in estimating its final value and by its production of coal: On the above assumption, the 35,000 acres, multiplied by 8,000 and divided by two, contain 1,400,000,000 tons, or, on a production of 1,000,000 tons per year, 140 years' reserve. These lands were on an old Spanish grant—the Maxwell. No such quantity of land or quantity of coal is needed to induce any corporation to engage in coal mining. But in the following estimate I assume that 50 per cent should be deducted from the estimated coal contents of any given area of coal land, in determining its value—and that ten thousand acres, or 40 years' supply at 1,000,000 tons per annum, is the minimum which should be allowed to a corporation willing to erect safe and economical works and equip its mines with every known safety appliance.

Value of Coal in Situ.

The value of coal *in situ* may be assumed to be determined by the royalty demanded in any given district for coal to be extracted. In Colorado, uncomplicated by store licenses and so forth, this is about eight (8) cents per ton. If, therefore, an acre in the Trinidad district yields on an average 8,000 tons of coal, and the royalty is eight cents per ton, the gross value of the coal in the ground is \$640 per acre.

If the coal were sold out and out, the compound interest calculated on the price of the number of years necessary to work out an area large enough to return the purchaser a fair remuneration for his investment, compensation for his risk, and profits on the enterprise as a business venture, must be deducted.

Original Outlay Costly.

The original outlay includes the cost of his surface equipment, which in the West, where the government coal lands lie, must be costly if it is to be efficient.

Our experience at Dawson has been that the cost of the sur-

face plant of a coal mine is by no means a negligible quantity. The wooden tipples and wooden washery, in existence when we bought the plant, were liable to be burned, and both were defective in structural details. As our company believed in the long life of the mines, it decided to erect steel tipples, with screens for accurate sizing, and a steel washery. The washery was designed by Dr. Ricketts, after visiting the best equipped coal mines in England and on the continent of Europe. But though complete in itself, since its erection it has been found necessary to increase its capacity, in certain departments, in order to recover from the jig waste some marketable coal, by further crushing and washing.

There being no profitable market for by-products, the proposal to erect retort ovens was dismissed. But as we anticipated demands for power, besides those of the mining company itself, 446 underflue ovens have been erected. As yet only 218 discharge their gases under eight Sterling boilers of 300 horsepower each. The heat from each oven has been found necessary to evaporate steam sufficient to generate ten boiler horsepower.

The power plant comprises four cross-compound Nordberg-Corliss engines 19 and 32 by 36 inches, direct-coupled to alternating-current generators of 2,300 volts, 400 kilowatts each. The four engines run in parallel.

The current from the power house is transmitted by insulated wires at 2,300 volts to rotary converters at substations, where it is converted from 2,300 volts alternating current to 260 volts direct current.

There are three substations. One at Lorita, near Mine No. 5, which is equipped with one 200-kilowatt rotary converter, 260 volts, 768 amperes. The substation at Mine No. 4 is equipped with two 200-kilowatt rotary converters, 260 volts, 768 amperes. The substation between Mines Nos. 1 and 2 has an equipment similar to that of Mine No. 4.

Cost of Plant.

The cost of the plant already installed has been as follows:

Cost of two steel tipples and one wooden one.....	\$ 82,842.32
Cost of washery	426,830.32
Cost of power plant	277,090.78
Cost of ovens	773,130.85
Cost of yard tracks, locomotives, etc.....	190,671.13
Cost of subsidiary equipment, such as pumps, operated by transmitted electrical power, etc.....	228,698.83
Total	<u>\$1,979,264.23</u>

The item for yard tracks includes not only a line of railway of three miles from Mines Nos. 1 and 2, and another of five miles

from Mine No. 5, but some eleven miles of track to serve the ovens and handle and store the coal and coke and washery waste. The company considers it better policy to own its own yards than to allow any railroad to approach its mines and tipples and thus deprive itself of the possibility of competition in transportation.

I have not included the cost of workmen's houses, amusement hall, hospital, schools, and so forth, as these are necessary accompaniments of every well-equipped western coal mine; and some of them are expected to return revenue. The plant may seem to have been needlessly expensive. But having suffered from fire during our own short experience and anticipating a long life for our mines, we built of incombustible material.

However, taking the above facts and arguing on the above assumptions, we reach the following conclusion:

Estimated value of coal land based on one acre of land containing 8,000 tons of coal:

10,000 acres land containing.....	80,000,000	tons coal
Deduct 50% for risk of mining, land will yield.....	40,000,000	tons coal
Net yield per acre.....	4,000	tons coal
Royalty per ton.....	8	cts.
Royalty per acre.....	\$320	
Number of tons mined per year.....	1,000,000	tons
Years to exhaust.....	40	

	Total	Per ton coal
10,000 acres @ \$320.00 acre.....	\$3,200,000 =	8 cts.
Cost of plant.....	1,979,264 =	4.94 cts.
Interest on plant investment @ 5% per annum equals \$98,963 per year for 40 years	3,958,520 =	9.90 cts.
Total Cost	\$9,137,784 =	22.84 cts.

Payment of 10,000 acres in advance.

One dollar compounded at 6% per annum for 40 years.....	\$10.29	
Royalty of \$320.00 ÷ \$10.29 equals present worth per acre.....	31.10	
	Total	Per ton coal
10,000 acres @ \$31.10 per acre.....	\$ 311,000	0.78 cts.
Cost of plant.....	1,979,264	4.94 cts.
Interest on plant investment @ 5% per annum equals \$98,963 per year for 40 years	3,958,520	9.90 cts.
Total Cost	\$6,248,784	15.62 cts.

Fixed Charges Should Be Taken Into Account.

In determining the cost of coal the fixed charges—in this case estimated at 15.62 cents per ton—should be taken into account as well as the operating charges. Inasmuch as the plant has to be maintained in perfect working order till the exhaustion of the mines, it seems to me that the cost, as well as the interest on the cost, generally represented by interest on a bonded debt, should be included in the fixed charges. This certainly should be done unless it is extinguished by a sinking fund during the life of the mine.

The past cost of producing and marketing coal, as compared with the future cost, is not the subject of the present discussion; but I cannot resist referring to two items which must hereafter make it notably higher than it has been. We have been attacking the outcrop of our coal seams, and avoiding deep mining. With such stupendous resources this has been possible and perhaps prudent, but we are reaching a period when this very economical procedure must cease, and we, and the public which we serve, must pay for the fuel the difference between the cost of robbing the outcrop and mining at a mile or more under cover. Moreover, the public very properly demands that our ratio of deaths and of accidents shall approach that of foreign mines. It has been admittedly high, and will continue to be high, despite all precautions. Not only is our labor less skilled than that of the old coal districts of Europe, but it is more greedy of gain and more or less infected by the American spirit of risk, which makes all of us willing to imperil our lives by rushing across the street before a motor or a street car rather than lose a second while it passes us. The instructions given to the miner by the foreman to put in a prop are deliberately disobeyed because the miner prefers risking his life to foregoing the extraction of half a ton of coal.

It is because of this tendency that we must alter our methods, though the alterations increase the cost of coal. This increase is estimated at from 8 to 10 cents per ton. It must cover increased supervision to enforce the observance of rules, electric firing, separate manways, where electric or compressed air transportation is employed; more perfect and durable systems of supporting the roof, sprinkling and spraying to reduce the danger of explosion, and other admitted improvements which are being adopted without government compulsion and likely to be made compulsory. Add this to the fixed charges, and the sum means either heavy loss to the operator or increased price to the consumer.

Alternatives Open to Government.

But to return to the more immediate subject of my address, the other alternatives open to government for the disposal of its coal lands are the rental or the royalty systems. From colonial times actual ownership has been preferred to renting. The experiment of renting the mineral lands was tried and abandoned in the early days of Lake Superior mining, but renting was the Spanish method and still works well in Mexico and in South America, where no limit is set to the quantity of mineral land which can be acquired by a single lessor.

If the government should lease the coal, reserving the surface rights, and the same requirements as to initial outlay were either imposed or voluntarily acquiesced in, the rental being a mere annual payment and not imposed on the producer in advance, would be calculated on the acreage value of the coal, exclusive of the deductions for discount.

But in considering the other alternatives, viz., allowing the coal to be mined on royalty or rental, objections may be raised against both systems. If eight cents a ton be a fair valuation of coal in the ground, the government would seemingly get all it was entitled to by accepting that amount; but under this system the miner has every inducement to mine cheaply and thus wastefully, and to rob the mine of its best and more profitable coal.

Under the rental system, which could be based on the calculation of the coal in a given area, less the deductions we have above made, the lessor, as he approached the period of exhaustion, would be paying an exorbitant figure on the balance of value and would be inclined to evade payment.

Would not a fair system be to charge a small rental on the total area and a reduced royalty on the coal extracted? Assuming 10,000 acres to be the required area and eight cents per ton to be a fair royalty, would not a rental of say \$1.00 per acre on the gross acreage, or say \$10,000 per annum, and four or five cents per ton royalty, be equitable? This would secure to the miner his necessary reserves and give to the government the value of the coal *in situ*.

The above suggestions are thrown out as subjects for discussion; but the conclusion forces itself strongly on our conviction that if a satisfactory revision of our land laws is to be reached, the farmer, the miner, the lumberman and the banker must be consulted before the politician acts. The coal miner alone knows the conditions and restrictions under which coal can be extracted with safety to the workman, with profit to the operator and justice to the public; the metal miner and the mining engineer alone appreciate the impossibility of literally living up to the letter of the old mining law, and the lumberman is certainly entitled to be heard before such sweeping judgments are passed upon him as we have heard pronounced of late years. Representatives of all the interests who actually occupy the public lands should sit upon a committee to suggest revision of the laws affecting the sale and the use of the public lands after sale, if such amended laws are to be practically applicable.

Condition of the Coal Mining Industry of Oklahoma.

BY JAMES ELLIOT,
M'ALESTER, OKLA.

This subject has been so thoroughly and ably covered by Mr. Bush that I do not think that it will be possible for me to shed any additional light on the subject, other than that which pertains to Oklahoma, to which field my labors have been almost entirely confined as an operator of coal mines. It might be well to state here, however, that my first experience in this line of business was that of a miner, not an operator.

Oklahoma is one of the few states in which the individual coal operator is still in existence, owing to the fact that it is one of the new states of the Union, and to a large extent, under Government supervision, which has made it almost impossible for strong combinations to form. The capital invested in the business, therefore, in comparison with that invested in other fields, is vastly less, owing to the fact that there is very little or no capital invested in coal lands, most of it being expended in machinery and equipment. Our coal lands, unlike those of other states, are the property of the Indians and are leased to the various coal companies by the United States Government, in tracts of nine hundred sixty acres each, on a royalty of eight cents per ton run-of-mine basis. The capital invested in machinery and equipment throughout the state (which I estimate to be about five million five hundred thousand dollars) is small, which is accounted for by the fact that under the terms of the lease, all property, with the exception of the machinery and tools, reverts back to the Indian Nations at the expiration of the leases. Elaborate plants for the mining and undercutting of coal are rarely installed, owing to the fact that in many cases machines are impractical, owing to the heavy pitch of the coal veins, and in cases where machines are practical, the small differential of from eleven to fourteen cents granted to the operator by the Union miners, along with their prejudices against them, has not warranted their installation.

The amount of capital invested in machinery and equipment for one hundred tons daily production, varies from ten thousand to fifty thousand dollars and depends entirely upon local conditions, which are varied, being regulated by the pitch and thickness of the vein, general roof and bottom conditions, pumping, haulage, etc.

In treating on the subject of the cost per ton for the last year, it will be necessary for me to sub-divide the state of Oklahoma into four districts, in accordance with the terms of our wage scale, and the character of the coal, which are, namely: Henryetta, Coalgate, Bokoshe and McAlester. The quality varies from low grade bituminous in one of these districts, to very high grade bituminous in another, still another district producing a semi-bituminous grade commonly known as semi-anthracite, or Arkansas quality. The cost of production, mine run basis, ranges from a minimum of one dollar and forty cents in the semi-bituminous in the Bokoshe field, to a maximum of two dollars and fifty cents in the McAlester district.

Our average cost per ton for the last five years has ranged, approximately, from one dollar and thirty cents to two dollars and forty cents, depending upon the district, and has been steadily increasing, owing to the advance in wages granted to labor; the increased cost of material and supplies; the competition of oil and gas, and the introduction of foreign coals into our natural market.

As stated above, the cost of mining a ton of coal in Oklahoma has ranged from one dollar and thirty cents to two dollars and forty cents per ton, eighty-eight and one-half to ninety per cent of which has been paid out to labor, the remaining ten to eleven and one-half per cent being paid out for material, supplies, etc. The cost of administration, which includes offices, salaries, office expenses and selling costs, for last year amounts approximately to twenty cents per ton. For a period of five years this cost has ranged from fifteen to twenty cents per ton.

The average selling price at the mines for the year 1910 ranged from one dollar and fifty cents in the Bokoshe field to two dollars and sixty cents per ton in the McAlester field. For the past five years the same average price has prevailed, with the exception of the year 1907, when for a short period the prices ranged from one dollar and thirty-five cents to two dollars and fifty cents.

In estimating the increased cost necessary to safeguard the lives of the miners, as demanded by the public at large, I will acknowledge that I do not think, if wise and uniform laws were to be enacted and enforced, that there would be any increased cost in connection therewith; in fact I am of the opinion that there would be a considerable saving in the Oklahoma field. The great difficulty we have had to contend with was the failure on the part of the state legislature, in enacting the mining laws of Oklahoma, to co-operate or discuss a single section of the present law with the

operators, consequently our mining laws are inadequate and impossible of enforcement. They bear little or no relation to the field in particular, being a conglomeration of the most radical mining laws of other states. If more uniform and practical laws could be enacted, and some basis of uniform taxation, along the line of that recently adopted in the state of Washington, in full settlement of personal injury cases, I am satisfied there would be considerable saving in the cost of producing a ton of coal.

Under the present system of mining in Oklahoma, the recovery of the entire vein worked is not in excess of fifty-five per cent. This is due to the extravagant system of room and pillar mining adopted in this field, and up to this time permits of no change, owing to unfavorable labor conditions.

As I have stated above, there is little or no capital invested by the operators in coal lands in Oklahoma, therefore it has not been customary to carry an item of depreciation in reference to the leases. While the prices received for coal in this field may seem high to the members of this convention, they must bear in mind that our working time is confined to six months of the year,—the average mine not running more than from one hundred to one hundred twenty days, consequently our cost of production and the price received per ton of mine run coal is greatly in excess of that of neighboring states where operating and marketing conditions are much more favorable. In order to meet expenses of operation and to make a fair return on the capital invested, our coal should bring from one dollar and sixty-five cents to two dollars and eighty-five cents per ton of mine run coal.

Owing to the adverse market conditions existing in Oklahoma, over forty per cent of our coal is necessarily sold below cost to the various railroad companies of the southwest. This is done for the purpose of keeping our mines open during the summer months, and to enable us to meet the winter demands.

In conclusion, it is my opinion that if uniform laws could be adopted throughout the United States, covering the operation of mines, the relationship between employer and employe, relating to terms of employment, a workmen's compensation law, and a National Board of arbitration to settle disputes, I am satisfied, Mr. Chairman and Gentlemen, that it would operate to the benefit, not only of the miner and operator, but to the country at large.

The Economics of the Coal Industry.

BY W. L. ABBOTT,
CHICAGO, ILLINOIS.

Prospectors are said to have great faith in the blind chance which leads the tenderfoot in the selection of the spot where he first strikes his pick into the ground to develop a profitable mine, and I presume it is because of my ignorance of the subject that I was invited here this afternoon to discuss the economics of the coal business. If any of you would have an opportunity to arrest a policeman who has pinched you for speeding, or to treat the teeth of the dentist who has given you many unpleasant hours in his chair, you may appreciate one of the reasons why I accepted the invitation. (Laughter.)

For twenty-seven years or so I have bought and burned coal for electric lighting, and I have come to be firmly convinced that the profits of that business would be considerable were it not for the great amount of the gross income which we have to turn over to the man who furnishes us the coal. (Laughter.) Because of that fact I don't think that I can discuss the question from your viewpoint. I, therefore, will not try to do so, but will discuss the question from the viewpoint of the consumer.

The term "Coal Baron" was coined several years ago, and from the fact that it is now falling somewhat into disuse we may assume that had it not been coined when it was, it never would have been. Why is it that with cheaper methods of production and with expanding markets and prices generally on the increase that the coal operator is neither happy nor prosperous. This is a question which capitalists and coal operators are asking. I don't know that I have a solution for the question, but some circumstances have come under my observation which probably have a bearing on it.

In the summer of 1902 the anthracite coal strike was on. The effect of that long drawn out struggle was, as you know, to create an apprehension that there would be a great shortage of coal during the following winter. The coal operators were not at all slow to seize upon this condition to stampede the market. The prices went soaring to unprecedented height, and their profits likewise. Many of these operators, as is customary, had a great portion of their production tied up in contracts. Some of these contracts, be it

said with credit to the operators, were religiously kept; others, however, were cast to the winds. I remember an incident in my own experience with an operator with whom I had contracted for a number of years, and whose deliveries had been in the main satisfactory. I began to have trouble in getting the deliveries prescribed in his contract. This he laid to one cause and another. First there was an accident in the mine; then there was an election, then there was a holiday, then there was another day to sober up; but most of all he couldn't get cars from the railroads to keep the mine running. I finally sent a man to the mine to watch conditions there, and learned that he was getting cars and the mine was running regularly, but someone else was getting the coal. Armed with these facts I went to his office and forced him into the corner, whereupon he good naturedly laid aside all further pretense and answered in about these words: "Abbott, I have sold my mine, to be delivered next April. I am making \$2,400 a day, and I don't care a d—m." Well, I don't know what the effect would be on me if it were \$2,400 a day profit on one hand and a mere business promise on the other hand, but I know the strain would at least be very great, and so it was with many other operators.

Following the season of prosperity during the winter of 1902 and 1903 came a long period of depression, four very lean years, during which the operators were looking backward to the golden harvest that had been and forward to a similar harvest which they hoped would be. The occasion came preceding the end of the biennial agreement with the mine workers, a period which terminated with March, 1906. During the preceding winter the coal market was again stampeded with tales that there was going to be a great coal shortage, and the prospective shortage in April, through some psychological process which was worked with great success, was made to raise prices in the preceding December, and for three months the operators again reveled in prosperity. This stratagem was so successful that it was worked again two years later, and now the same specter is being groomed for an encore during the coming winter.

The immediate result of these high coal prices has been to increase the amount of capital invested, the number of mines, and the mining cost. The ultimate result, however, has been to decrease the profits of the business, the output of Illinois mines, the tonnage of coal produced per man, and his average annual wage. Such has been the effect of the biennial raids on coal business by labor, if not acquiesced in, at least taken advantage of by the operators as an

opportunity to in turn raid the consumer. The operator has had a three months' spree, followed by twenty-one painful months of sobering up. In the end he finds that over the entire period he has lost money, and his business instead of being one of conservative and continuous profit is subject to short periods of high freshets and long periods of exceeding low water, and all because of an apparent inclination on the part of the operator to raid his customer under cover of labor disturbances, rather than to protect the customer and the coal business generally from such onslaughts.

It is easy to suggest a remedy, but to carry it out is quite another matter. It seems to me, however, that no relief is possible until the operators are able to control their labor, which will not be until they are able to control themselves, and this will only come to pass with extensive combinations which will eliminate small interests and result in large holdings, making it possible to effect a strong organization able to dominate the coal business and deal with labor on something like equal and equitable terms; and if the history of the petroleum business is any criterion, the for capital and for labor and, greatest of all, for the consumer. greater and more powerful this combination, the better it will be

I thank you, gentlemen, for your kind attention. (Applause.)

The Operation of the Mine-Run Law in Arkansas.

BY DR. A. H. PURDUE,
FAYETTEVILLE, ARKANSAS.

It was not until I was ready to take the train for this Congress that a program reached me bringing the first information that I was expected to present a paper on Conservation in the Coal Industry. Because of the brevity of the time for preparation, I shall take the liberty of deviating somewhat from the subject assigned me and confine my statements to a single phase of conservation in the coal industry with which I happen to be familiar—the one included under what is known as the mine-run law. Furthermore, I must limit myself to the operations of the mine-run law in Arkansas, for I know but little of its results in other states.

Somewhat more than two years ago, the Geological Commission of Arkansas directed me as State Geologist to have prepared a report on coal-mining in the state. The work of the report was entrusted to A. A. Steel, Professor of Mining in the University of Arkansas. While I do not wish to shirk any of the responsibility for the statements herein contained, all fairness requires me to say that they are compiled from the report by Professor Steel. This report, when completed, will be comprehensive, and though its organization does not indicate such, it treats the subject of coal mining in its relation to the engineer, the miner, the operator, the public and the state. In the course of his work in collecting data for the report, Professor Steel visited, and was in practically every coal mine within the state of Arkansas, and talked with scores of miners and most of the operators. He is one of our most careful, honest, competent and painstaking observers.

The mine-run law was passed in Arkansas in 1905, and as the conditions brought about by its operation are probably the most vital of any that relate to the present condition of the coal mining industry in the state, we offer no apology for having devoted one chapter of 54 pages of the report to this subject. I shall not impose upon your patience by entering upon a detailed treatment of this important phase of the coal mining industry in my state, but shall content myself by touching upon some of the most salient points.

It might be well to state in this connection, for the benefit of those not familiar with coal-mining methods, that what is known

as the mine-run law provides that the miner shall be paid for all coal, both lump and slack, taken from the mine. Before the enactment of the law in Arkansas, the miners in that state were paid wholly or largely on the screened coal basis, and the great argument in favor of the law was, that not being paid for the slack, the miners were giving the operators a marketable product. While this argument appears valid, it really is not sound, as applied to conditions in Arkansas, for a simple arithmetical computation shows that the competent miner could make more money on the screened coal basis at the rates paid for that, than he can on the present mine-run rates.

Another argument in favor of the mine-run law in our state was that the screen often let lumps through into the slack, thus robbing the miner. In some instances, the operators may, through carelessness, have let this occur, but the difference between the selling price of the slack and that of the lump coal at the mine is so great, that it is decidedly to the interest of the operator to pass all the lump coal over the screen.

Probably the most vital argument in favor of the mine-run law is that if the miners are paid for only lump coal, they will leave a great deal of slack in the mine as a permanent loss of a natural resource. But in Arkansas, only a small amount of slack was left in the mines for the reason that the coal is loaded with the shovel, and is shoveled up from the floor.

The operation of the mine-run law in Arkansas furnishes a fine example of the evils that may follow legalizing a practice which on its face appears equitable. No miner or operator has ever looked fully into the results of the law, for it is impracticable for either to have done so. Such investigations can best be conducted through the agency of a public bureau, and this fact supplied the Geological Survey of Arkansas the reason for taking it up as a part of the coal-mining investigations.

One noticeable result in the operation of the law in Arkansas is an increase in the per cent of slack. That such has been true is recognized by both miners and operators. Investigations by the Geological Survey go to show that this has been very great, reaching more than 14 per cent from 1906 to 1910. Were all miners men of high ethical ideas, this would not have been true, for each miner would then have continued to produce the maximum amount of lump coal, though he was receiving as much for the slack as the lump; but miners are like other people. They are not all honest, and some of them are not only dishonest, but lazy. It is easier to

mine coal with a large per cent than with a small per cent of slack. So the dishonest, lazy fellow yields to the temptation to put in heavy charges of powder without first undermining the coal, rather than to undermine and then loosen the face with light charges. In other words, he conserves his energy at the expense of his powder. The extent to which this physical conservation may reach, is shown in the case of two mines in the same district in one of which the coal was undermined before shooting, and in the other it was shot without undermining. The proportion of powder used in the two cases was as 1 to 5.8. That is, 5.8 times as much powder was used in the latter case as would have been used had the coal been properly mined. It also means that the excess of powder energy went toward producing slack.

It is often remarked by those not conversant with the details of the industry that the slack is not lost either to the operators or the public, for the reason that it is sold. This is true; but slack in Arkansas brings from 95 cents to \$1.50 less per ton than lump, so that all slack that had as well be put on the market as lump represents so much loss to the operator.

But the loss is not to the operators alone. The principal sufferers are the public. In Arkansas there are frequent partings of dirt or slate in the coal that under proper methods would be largely or wholly mined out. These are shot down with the coal, the dirt becoming hopelessly mixed with the slack, and the slate largely so. This of course means a loss to the consumer in the freight paid on worthless material, to say nothing of the loss in heating value. While the per cent of slate thus introduced in lump coal has not been ascertained, it is known to be great, regardless of the fact that the larger miners each employ extra slate pickers in their efforts to put good coal on the market. An idea of the per cent of increase of fine slate in slack may be obtained from a single slack washer, in which it was found that the per cent of slate in the slack increased from 11 in 1907 to 23 in 1910. By comparison with the price of other coals and figured on the basis of the Government contracts, the loss in the quantity of the Arkansas coal due to the excess of slate is \$.35 a ton. As the normal annual output of Arkansas coal is two and a half million tons, this means that there is an annual loss to the consumers of \$875,000 net. A conservative estimate shows that the excess of slate in the coal used by the state institutions of Arkansas costs the state about \$4,500 a year. This comes in loss of fuel value and the freight and drayage on the excess slate.

Not only is the quantity of Arkansas coal reduced by the excess of slate in both lump and slack, but the quality of the lump is materially reduced. The heavy charges used in shooting down the coal greatly reduce the amount of lump that goes over the screen, and also so shatters this that in the jarring and handling incident to its transportation from the mine to the consumer, no small per cent is broken down into slack. I think it is safe to say that of the so-called lump coal produced by our mines, at least 30 per cent is slack before it reaches the cellar of the consumer. In common parlance, the consumer "has the bag to hold."

As the operators sell coal at close profits, the balance of trade between competing districts is very sensitive and quickly responds to an increased cost of mining or a decreased quantity from any district. This is exemplified in eastern Arkansas, where Arkansas coal and Illinois coal come into competition. In 1904, it was shown by Government experts that Arkansas coal had at that time about 20 per cent more heating value, and less ash and sulphur than Illinois coal. It was, therefore, then possible to sell Arkansas coal at competitive points for a higher price than was paid for Illinois coal; but at present, the quality of Arkansas coal is so reduced that the market of the eastern part of the state is supplied largely by the Illinois mines at prices ranging from 35 cents to 50 cents a ton higher than that of Arkansas coal.

The excess of dirt and slate in coal not only results in loss of market, but entails much extra cost in mining. During the year 1909 one company in Arkansas washed 28,800 tons of dirt from its slack. It is estimated that at least half of this could have been left out by proper mining. That is, the company paid 62 cents a ton or \$8928 for dirt that in all fairness should have been left in the mine. Probably a better idea of the increased cost of mining could be arrived at in another way. Since the mine-run law went into operation in our state, the increase in the amount of slate is conservatively estimated at 5 per cent of the weight of the coal. With an annual output of 2,500,000 tons, this excess of slate costs the operators \$137,500. If this slate is removed before the coal goes on the market, the operators suffer. If not, the consumer suffers.

The cost of mining is further increased by the cost of explosions produced by excessive use of powder, by removing the excessive amount of draw slate, and by an increase in the general operating expenses.

But the effect of the mine-run law in Arkansas extends not only to the operator and consumer, but in many ways reacts upon

the miner himself. Not the least of these is an increase in mine accidents. In 1905, there were 21.2 accidents to the 1,000,000 tons of coal mined, and 1909, 31.1 accidents—an increase of 9.9. The increase is caused from an excessive use of powder, which loosens or blows out the props, shatters the roof so as to increase the falls of rock, and makes the shot-firer's task a hazardous one.

The daily earnings of many miners are less than formerly, the decrease ranging from 25 cents to \$1.00. The reduced earnings of our miners through loss of market and the general depression of the industry in the state doubtless is far greater than they realize. If the Arkansas operators could control the market in the eastern part of the state that legitimately belongs to them, but which is now supplied by Illinois and Alabama, with the present miners and present crew they could run a possible 20 days per month instead of 17 days. The average earnings of the miners would thereby be increased \$7 per month, which with 4000 miners in the state would be a total monthly increase of \$28,000.

A very serious effect upon the miner and one that is growing is the loss of skill. It takes a miner to mine coal, but any able bodied man can shoot it. The latter shoots the coal down as slack and as the former must come in competition with him, the inevitable result is to lower the work of the craft to that of the common laborer.

The foregoing remarks relate to conservation in the coal industry chiefly in the broad application of the term. Let us now take up briefly the effects of the mine-run law in the more restricted sense of relating to the permanent waste of coal. The heavy shooting causes an unknown but large per cent of the coal to fly to all parts of the room. Much of this falls in places that are not conveniently accessible, and much of it on the piles of draw slate. The miner cannot afford to spend his time to pick up this coal, so it remains in the mine as a permanent loss.

There is another permanent loss of coal in unmined patches that cannot be worked with profit under present conditions for which the mine-run law is largely, if not wholly responsible. Such patches include those in which there is an unusual number of bands of dirt; or an unusual amount of bone or sulphur; or where the coal is seamy or otherwise faulty; or where the roof will not stand the heavy shooting; or those parts that are too thin to mine under present conditions. After these patches are left and the mine fills with water, it probably never will be practicable to mine them out.

All this is attributable to the reduced profits brought about by mine-run conditions. A careful study of mining costs shows that,

at an additional expense of 10 cents a ton, enough coal can be mined from the patches that are now left in the ground, to increase, by 15 per cent, the proportion of coal recovered from the areas which are now mined. It is estimated that the total underground waste in Arkansas, under present conditions, is 20 per cent of the output. As the normal output is about 2,500,000 tons, the loss to the state is about 500,000 tons annually, worth \$840,000. This may be considered an absolute waste of our resources.

A summary of the annual cost to the state of Arkansas which we think is fairly attributed to the mine-run law, is as follows:

Loss to present producers and consumers..	\$1,670,000
Net loss to mine workers now in the state..	100,000
Loss due to the loss of market.....	1,600,000
Loss from unmined patches.....	840,000

Total.....	\$4,210,000
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In a state which is relatively a very small producer of coal, this is appalling. It is the result of a law that was enacted with the best of intentions. On its face it appears to give the miners what they justly deserve; but in its operation it reaches out in many directions with disastrous results that not even the most thoughtful operators foresaw. It works a great injury to the consumer, the operator, and even to the miner himself. Many, it is believed a majority, of the miners in our state recognize the evils of the law, and would hail its repeal with delight.

The "Mine Run System" of Mining Coal.*

BY J. E. FINNEY,
HUNTINGDON, ARKANSAS,

Representing the Southwestern Interstate Coal Operators' Association.

This great commercial era is popularly regarded as a day of "greed and graft," a "survival of the fittest," in the industrial world. This is a mistaken idea, and not in accord with the conduct of modern well-regulated business enterprises. Society in general, and the rising generation in particular, appeal for protection against any system of business or law of commerce that encourages dishonesty or permits fraud. It is true that there are some men in all the ordinary branches of business that consider it a mark of success to be well versed in the art of scheming and defrauding their fellowmen, but such men and methods should not be protected by the strong arm of the law.

Recent legislatures in some of our coal producing states have been led to believe that a great fraud was being practiced upon the coal miners by paying them for the coal they produced on a "Screened Lump" basis, whereby they were paid a certain price per ton for lump coal and, apparently, nothing for the slack which necessarily accumulated in the process of mining and loading this lump coal. These legislatures sought to remedy this so-called evil by enacting laws that would prevent the coal being passed over a screen before it was weighed and paid for, and as a result we have the "Mine Run" basis for mining and paying for coal in these states. After a few years of actual experience, it is now evident that the operation of these laws, by a natural process, and without criminal intent on the part of those implicated, has developed the greatest system of fraud ever known to the mining business. It is admitted that some unscrupulous operators had allowed the screens to spread, thereby deducting unfair quantities of slack from the lumps, but this was confined to the careless or unscrupulous operators who were a discredit to the mining industry and whose acts were deplored by their fellow operators as well as the miners. Either of the above methods of operation are inclined to debauch

*The discussion of this subject is especially applicable to the southwestern coal fields, and particularly to the prevailing conditions in Arkansas and Oklahoma.

the morality of the men engaged in this great industry, and to correct this unnecessary evil it would seem that the logical conclusion would be to repeal this mine run legislation, to prevent fraud on the part of the miners; and enact legislation providing for a *standard, uniform screen*, with severe penalties for fraud in construction and maintenance, to prevent fraud on the part of the operators. This would, in our judgment, insure equitable payment for the labor of mining the coal, and fair methods of producing coal that is paid for with the understanding that it shall be "good, marketable coal." This would insure fair dealings on the part of both employer and employe and prevent the destruction of vast quantities of coal by overshooting it into a mixture of slate and slack that cannot be separated; thus conserving this great waste of our most valuable natural resource, and at the same time, remove an incentive to fraud that benefits nobody but is an expense to every consumer of coal, and is corrupting the morals of hundreds of otherwise upright young men.

Aside from the claim that the screen deducts unfair quantities of coal, the prime reason urged for the enactment of this legislation was said to be an effort to make the operator pay for the slack at the same rate that he paid for the lumps; and, it has been stated by the miners' legislative agents that the inexperienced should receive the same wage as the skilled miner, which is evidently an effort to secure recognition of equality among all miners regardless of their ability or experience. It is an undisputed fact that the old-time miner, trained to use picks instead of powder, can earn better wages under the screen coal basis; while under the mine run system the man with the longest auger is the best "coal-digger"—all classes of miners being equal as long as they are supplied with plenty of powder. This theory of "all men being equal" seems to have entered into the question of mining coal. It has been proven by history as well as our own experience that equality cannot exist among all men, but only among individuals who stand upon a common level physically, intellectually and morally. Nature herself proves that there is no standard in any form of life. The corn-stalk grows one ear more perfect than all the rest. The natural process of life and living separate the fit from the unfit. To urge the fitness of a blind artist in a contest with one who sees is just as logical as to claim the right of inefficiency to share equally with industrious capability. The best man wins, not by following others, but by virtue of his place to the fore. The door of opportunity opens

wide to the man who has the strength, courage and tenacity to embrace it. A system that would reward equally the indolent with the energetic; the coward with the courageous, and the skilled with the unskilled would soon reduce society to an unaccomplishing inferiority by removing the impetus which urges progress along all the lines of human advancement.

There is no doubt but that the legislatures referred to enacted the mine run system into law in an effort to correct what they considered to be a great injustice to thousands of coal miners which they represent. Notwithstanding, we now discover that this mine run system is a most serious detriment to millions of consumers and of no benefit to the miners themselves. In fact, it is a detriment to the miners because it places a premium on unskilled, reckless and vicious shooting of coal with excessive quantities of powder to the detriment of the skilled, careful and conscientious miner who gets no more for the product of his painstaking labor than the unskilled man does for shooting his coal out with no skill and very little labor. Under the screen coal system the average miner received the same wage for one ton of coal as it comes from the mine as he now gets, while the more skilled miner received more per ton by reason of the fact that he had above the average percentage of lumps and was paid according to the lumps produced by him. For example: In Arkansas, before the enactment of the mine run law, the miner received 62 cents per ton for mine run coal and 90 cents per ton for screened lump coal. At that time the average miner produced 69% lumps and 31% slack. On a mine run basis, at 62 cents per ton, he would receive \$62 for 100 tons of mine run coal. On a screened lump coal basis, at 90 cents per ton, he would receive \$62.10 for 100 tons of mine run. By the exercise of care and skill in producing the coal, better miners would get 75% to 80% lumps, which would net them (80x90c) \$72 for 100 tons mine run, or, 72 cents per ton for the mine run when paid on the screened lump basis. Thus it is proven that it is possible for the experienced miner to earn 10c per ton more for good honest work on the screened lump basis than he can get under the mine run system.

So much data has been gathered on this subject that we refrain from introducing additional facts as we believe the following statements, from such well-known and authoritative sources, are more convincing than anything we could suggest:

Edward W. Parker, U. S. Geological Survey Bulletin, Jan. 3, 1911, timely observes on

Over-Shooting Coal:

“Arkansas and Oklahoma have suffered from other troubles than the strike. There has been strong tendency on the part of the miners to use *increased quantities of powder*, and it is also stated that dynamite is frequently used, a practice which is not only dangerous to life and property, but results in a largely increased percentage of slack. Moreover, it is the practice in nearly all the mines to shoot off the solid. This also is extra hazardous and has increased the *quantity of slack so that it is now double what it was fifteen years ago*. This results in complaints by the purchasers that coal which appears to be lump coal on arrival easily disintegrates as a result of the crushing strain to which it has been subjected by the mining methods employed.”

The General Assembly of Arkansas, in 1909, created a commission consisting of the Governor, Commissioner of Mines, and the President of the University of Arkansas, and authorized them to appoint Prof. A. H. Purdue, State Geologist, and instruct him to investigate or have investigated the conditions relating to the safety of miners and mine operations. These investigations were conducted by Prof. A. A. Steel, Professor of Mining, University of Arkansas, and the reports of his investigations are of vital interest to all operators and miners affected by the “Mine Run System,” as provided for in the statutes of Arkansas.

(Practically the same law is in effect in Oklahoma, Kansas and Missouri, and in a modified form in several other states.)

We can offer no better argument against the operation of the mine run law than to quote some of the important findings of the above Commission, composed of such notable and worthy men, and personally certified to by Prof. A. A. Steel, who went into the mines and gathered information from the rank and file of the miners, as well as operators and consumers.

We refer you to the report of the Arkansas Geological Survey, as follows:

Screens Do Not Reduce Wages.

That the screened-coal basis of payment recompensed the miner in full, is shown by the results at Mine No. 2, Denning. Here the coal is of such unusually high quality that it can be shot from the solid with

a less proportion of slack than in most mines; but in order to encourage the miner to use care in placing his shots, the company has gone to the expense of first weighing the coal as required by the mine-run law and crediting the miner with it. The coal is then screened and the lump coal reweighed and credited to the miner at the old price of 90c per ton. If at the end of two weeks the price of this lump coal at 90c per ton is greater than that of the mine-run coal at 62c per ton, the miner is paid the difference as a premium. Otherwise, he gets the full mine-run price. Under this arrangement, however, the men have much less incentive to do good work than if they did not have the mine-run basis of payment to fall back upon. The result is that the lazy men shoot the coal to bits and the incompetent ones make no effort to improve so as properly to mine the coal. Still, out of 203 diggers on the pay-roll for January, 1910, 134 or 66 per cent, earned the premium; that is, they received more than 62c a ton for all the coal including the slack in it.

Maintenance of Screens.

The second argument in favor of the passage of the law was, "The screen is a robber." By this is meant that the bars of the screen would become bent and permit large slabs of coal to pass through. It is regretted that one or two of the companies were very careless about the condition of their screens many years ago, but this injustice was very promptly corrected by the Miners' Union upon its organization in 1903. For years the screens have never been seriously defective and when slightly out of order they have been promptly repaired. In fact the miners' committee inspected the screens each time the scales were tested, and whenever any bar became bent the committee required that it be straightened before any more coal was weighed. The operators now generally realize that it is actually to their own interest to maintain the screen in good condition since screened coal for domestic use has always been worth more than 90c a ton above the price of slack coal.

Reduction of Wages.

The mine run law requires that the miner be paid for his coal regardless of its quality. It takes less labor and less skill to shoot the coal out carelessly than to mine it in such a way as to get a large proportion of good lump. The mine run law therefore gives the miner the same pay for less work and this is the real reason why some miners favor it. If it is claimed that the production of good coal requires too much work, why not for the same reason prohibit the contracting masons from allowing those of their men that are paid by the thousand brick laid, to point or otherwise finish the joints? Or, why not prohibit the plasterers from troweling their work smooth, or compel the cabinet maker to leave his furniture unplanned? In each case, labor would be saved and people could get along. Such examples show the folly of attempting to change methods of work by law. Besides determining the manner of weighing the coal, the mine run law has changed the method of mining it. This change has caused the injury to the quality of the coal, which in turn causes a hardship to the public.

Fifty Per Cent Increase of Slack.

The law has made the companies powerless to regulate the amount of their coal which is shot into slack, with the result that the proportion of slack is constantly increasing. Affidavits of the companies, an examination of their shipping books, and the results of test runs made by the superintendents, show that those few mines which made as little as 21 per cent of slack on the old screened coal basis now make 31 per cent; those which then made about 25 per cent now make from 35 to 40 per cent; those which then made about 30 per cent now make over 40 per cent; and those that made about 34 per cent in the old days now make 50 per cent. This shows an increase in the proportion of slack of about

50 per cent of its original amount. It will be shown later that this excessive production of slack causes a waste of one of our natural resources.

Table of Increase in Kansas in Ten Years.

Year.	Per cent Lump	Per cent Slack
	Coal.	Coal.
1894	59.21	25.96
1895	57.79	27.60
1896	57.65	26.54
1897	55.43	27.96
1898	56.04	29.92
1899	57.20	27.91
1900	56.12	28.37
1901	53.37	32.10
1902	51.73	34.32
1903	50.38	35.67
1904	45.91	38.15

Increase of Slack in Arkansas.

For year ending April 1.....	1906	1907	1909	1910
Average of per cent of slack at three mines..	28.10	28.00	36.04	42.32
Per cent slack produced at one of these mines	26.42	26.10	39.32	41.87

Powder vs. Skill.

Many of the miners are fine men and do not wish to be known as "slack makers," but they find it hard to withstand the gibes of their fellows and are therefore becoming more and more careless. From year to year the common length of the augers sold to the miners is increasing. This shows the tendency to put in fewer and heavier shots than formerly. It means heavier blasting and more slack each year. As the younger men who are now entering the trade do not understand the old careful way of mining, the proportion of miners skilled in the best methods is bound to decrease; and the proportion of slack produced in mining the coal will correspondingly increase, unless the men have some incentive to do better work.

Desperate Efforts to Get Lumps.

At present some of the superintendents are arranging to get lower sideboards upon what new cars they need, and to give the miner fewer cars per day. Then in order that the miner may make good wages, he must mine up enough lumps to chunk up his car so as to increase its capacity. Some superintendents are even thinking of removing the doors from the cars so that the miners will have to mine lumps to hold the coal in the car. Both of these plans will work a hardship upon the good miners as well as upon the careless ones, and the second one is only a desperate last resort, for it may increase the accidents upon slopes.

Unnecessary Waste Which Benefits Nobody.

Since we have sufficiently shown that a constantly increasing proportion of good lump coal is shot into slack as a result of the passage of the mine run law in 1905, it may be interesting to see how this affects the operators.

Since slack coal is worth so much less than lump coal, the natural result of an increase in its proportion is to decrease the average value of the coal. The average prices of the different sizes of coal have not been published, but from information given by companies, wholesale dealers, and others, it is known that the price of the slack coal is from 95c to \$1.50 per ton less than that of the lump coal from which the full amount of fine coal has been removed. The average difference is at least \$1.15 a ton. Now the mine run law has increased the slack on an average from the normal 30 per cent to at least 45 per cent. It has therefore reduced the value of 15 per cent of the output of the state by \$1.15 a ton.

Some Results of Over-Shooting.

"Shattering the Lump Coal." The mine run law injures the companies by also reducing the quality of the output and hence its cash value. The heavy careless shooting not only reduces the proportion of lump coal but also greatly weakens those lumps which are not entirely broken up. As a result, they readily slack off on standing and are easily broken by handling. It will therefore not endure railroad shipment as well as it should. When domestic lump coal is loaded out by a careful retail dealer, the lumps are forked out and the coal remaining is sold at slack prices. In this way, it is possible to tell accurately how much slack is found in the coal. An affidavit of Mr. Geo. McLean of the Merchants' Transfer Company of Little Rock, states that several years ago, the Arkansas coal which he sold left from 3 to 5 per cent of slack, whereas, in 1908, it left from 10 to 16, generally about 15 per cent. This is coal which left the mines as clean, fancy lump and was screened in the same way as before the mine law went into effect. The experience of Mr. McLean is that of all dealers and consumers, and shows how much the coal is shattered by the excessive shooting.

"Increase of Slate in the Coal." There is a further injury to the operators, because the mine run law compels the companies to pay the miners as much for slate as for coal. Some little protection is afforded by the agreement with the Union which allows a few of the worst offenders to be laid off for from one to three days, but they can only be penalized for loading out slate that is in large enough pieces to be picked out by hand from the lump coal. The companies are not allowed to put another man in the place made vacant, so the laying off of the men is an expense to the company because it reduces the output of the mine. Since it is generally impracticable to inspect the slack coal for slate, the miner gets a premium for shooting all of the dirt band and slate into small pieces and of course the coal goes also. Nevertheless, much slate in large sizes gets into the lump coal, although the companies have from two to six extra pickers at each large mine in their efforts to produce salable coal.

"Cost of Explosions." A further slight increase in the cost is due to the increasing frequency of destructive "windy shots," or dust explosions, resulting from the excessive use of powder. Doors and stopings blown down by them must be replaced, and the cost of a single general explosion is often great. At many mines, it is already necessary to pay the shot firers extra on account of the extra risk they run.

"Effects of Heavy Blasting." A little reflection will show how much more a heavy wide shot will affect the roof, than the same amount of powder in two light shots. At present many of the miners put in only about half as many shots as formerly, to get out the same amount of coal. All of them are using fewer shots. This change in the blasting does not show in the figures for the consumption of powder, and it is safe to say that at present the blasting of the coal is at least three times as severe as it was in 1905.

The heavy shooting also sends the coal flying against the props. At a mine at Spadra, the writer saw some large pieces of coal which had been thrown by the blast of the afternoon before a distance of 40 feet. They had knocked out the props so as to leave an open lane down one side of the room. Besides knocking out props, such shooting cracks or otherwise weakens some of them in a way which the miner does not notice until the roof falls. The worst trouble is the increasing tendency of the miner to set his props as far from the face as possible, so as to save the labor of replacing them. He therefore works in an unprotected space. This wide space also gives the roof a chance to loosen and get drummy, which throws an added strain upon the places where the tough slabs have been weakened by the direct blows of the powder.

The heavy and wide shots now used are dangerous to the shotfirers, and many miners have begun to ignore all ordinary precautions for safety in blasting. At a mine near Hartford, the writer saw a large mass of

coal which had been shot out of its position, but was still tightly wedged between the roof and a roll in the floor. The miner was very frank and when asked how he would go about picking this coal down, he laughingly set his auger in position for drilling a splitting shot through the center of this chunk of coal and said, "With two feet of powder." Then he added, "I always find an auger when I start to look for a pick."

"Accidents." So far as they are available, the records of the accidents in the Arkansas mines show the increases in the number due to falls of roof and the firing of shots, which might be expected from the increased severity of the blasting.

Imperfect as these figures are, they well illustrate the effect of the mine run law. The heavy shooting following the passage of the law has progressively increased the amount of rock falling in the rooms to triple that of 1905; this is shown in the table on p. 267. It is therefore directly responsible for at least half the deaths due to this cause in 1908. All the fatal accidents due to firing shots in 1907 and 1908 and probably at least half of those in 1906, happened to regular shotfirers. Nearly all of these deaths are due to the heavy and careless loading of the shots encouraged by the mine run law and at least four of the seven may be charged against it.

Loss of Skill.

The miners are further injured by the mine run law because under its operation they are losing their old-time skill, which will make it impossible for them to get employment in fields where it is necessary to do pick work. This lowering of the standard of skill also throws the occupation open to any man with a strong body. As soon, therefore, as the artificial conditions due to the Union, break down, the wages of the coal miners can not be maintained as much above the pay of common laborers as at present. The bringing in of such a lot of inferior workmen is sure also to be the end of the Union, since unskilled labor has never been successfully held in line during a long strike.

There is now no incentive for the new men to learn how properly to shoot the coal and as a result the mine run law means stagnation in the progress of our miners toward increased efficiency.

Loss to Arkansas as a Result of the Mine Run Legislation.

In conclusion, we repeat the list of direct money losses caused to the state each year by this absurd law.

The loss to the present producers and consumers of coal.....	\$1,670,000
The net loss to the mine workers now in the state.....	100,000
Additional loss to the coal industry alone due to loss of market.	1,600,000
Absolute waste of our resources.....	850,000
Total	\$4,220,000

The astounding sum of money includes no duplication and does not consider the great loss to the railroads, merchants, and other interests incident to the decline of the coal-mining industry.

In addition to the money loss, this law already costs the lives of seven of our miners every year, sacrificed to the greater ease of shooting out the coal, instead of mining it.

This is surely sufficient to make it clear that the repeal of the law prohibiting the screening of the miners' coal before weighing it, is the most important service to the state that the legislature now has an opportunity to perform.

The Economics of the Coal Industry.

BY CARL SCHOLZ,
CHICAGO, ILLINOIS.

The operations of the Rheinisch Westfalian Coal Syndicate have frequently been discussed as the most satisfactory organization of its kind and its methods have been at least partially described in our trade publications. Little, if anything, has been said as to the causes which led to the establishment of the syndicate—even less is generally known of various stages which were gone through before its present form was adopted. Because this syndicate has been in successful operation for eighteen years, with only minor changes at the expiration of each of the five or ten year contract periods, it is customary to assume that German mines have always enjoyed their present prosperity. It is a popular notion that those mines had no part with struggles against adversity due to competition.

On the contrary, the same difficulties which now confront the coal operators of the United States were, in the early stages, experienced by the mine owners in the Westfalian district. In fact, during 1870, a crisis was reached and disaster was only averted when the German-France war brought a decided but very short-lived relief. The lesson to the coal operator of the United States is that Germany has faced and solved problems similar in character and degree to those with which we are struggling. The question for us to answer is whether we shall travel the same road, step by step, or shall profit by their experience and adopt at once their successful plan. The tonnage of the Westfalian district was 2,250,000 in 1850; 13,000,000 in 1870; 39,000,000 in 1890 and 91,000,000 tons in 1909. These figures are given to show that the increase is about on the same ratio as that of the United States, although with them, getting the coal is more difficult and the cost of extraction is greater. It is safe to say that with the same physical difficulties the operators of the United States would not have been able to keep up the rate of increase as was done in Westfalia. Because of the many points of similarity, it is interesting to follow their development from early difficulties to the present.

From the earliest beginning—over a hundred years ago—the Westfalia mine owners recognized the advantages of co-operation for mutual protection and funds were established to provide against

losses of life and damage to property of the individual operators. At that time, mine owners worked alongside the few laborers whom they employed. As the size of mines increased and as conditions of mining became more hazardous, the usefulness of the small organization of operators was extended to cover broader fields. Included in those larger investigations were: matters of safety; economies in production and usage of coal; the study of competitive coal fields; the testing of apparatus, machinery and explosives; the mapping and study of geological conditions of the coal fields; the education of mining officials to cope with the new dangers, due to deep shaft mining, gases and enormous water flows; the management of the various accident, pension and annuity funds; the conduct of hospitals and convalescent stations for aged or injured employes and their families; and, the enactment of suitable and just legislation.

This work was costly but was conducted by the owners through various associations and organizations who compiled valuable data which was distributed to all interested parties. In all of these matters, the Government has more or less a voice through its representative in the mining bureau, which is a part of the department of trade and industry. This department, incidentally headed by the minister, carefully considered every proposed action and his sanction had to be secured before any plan could be made effective.

During all this time of co-operative work, the only matter left for individual decision was the sale of coal. By the year 1865 very fierce and destructive competition had developed, which led to financial ruin of many concerns. Consolidations were effected but without relief. Efforts were made to raise the income by restricting the output but this proved ineffective. It was difficult to obtain the consent of a sufficient number of owners to agree to any restriction concerning output, but it was finally accomplished. Under the plan adopted a reduction of tonnage to ten-twelfths of the previous year was fixed as the safe maximum but a depression in the iron and steel industry reduced the estimated requirements and, notwithstanding the many fines assessed, some producers exceeded their allotment.

About that time, coal, coke and briquet clubs were established, whose function it was to fix prices on the various grades and sizes of coal, these prices being regulated by the double standard of the intrinsic values of the coal and the ability of the consumer to pay the cost of production was not, of course, disregarded. It should be borne in mind that steam, coking, gas and domestic coal, in widely ranging qualities, were produced and from this source the complica-

tions were multiplied. These coal clubs had entire control of the output of their members for a given territory and were what we would term, district sales organizations. Each member sold his coal direct to the consumer but upon the advice and instruction of the club committee. Invoices and contracts passed through the offices of the clubs for verification of prices.

Due consideration was given by these clubs to such condition as variation in consumption during the year. For instance, sugar factories paid a higher price than other manufacturers who operated throughout the year; sugar factories operate only during the fall and winter when coal is in demand.

Each group of owners selected representatives to look after their interests—confidence men, so called because they acted absolutely with the view of solving the problem of the district without consideration for any selfish interests they might care to serve. These plans were carried out with the concurrence of owners representing from eighty-five to ninety-two per cent of the tonnage of the district.

There was dissatisfaction with this plan from time to time. This was peculiarly so on the part of furnace operators who owned mines or had contracts with independent mines, these contracts calling for greater production than the allotment authorized these mine operators to produce. It was seen as a result of such complications that consolidations of property would eliminate many objections incident to the numerous smaller operations. A commission was appointed and for nearly ten years continued its work, but its recommendations were in the end, not adopted, although the information thus obtained was responsible for more acquisition of property and combinations of smaller character.

The individual coal and coke clubs became more and more solidified and by 1890, when the above mentioned commission made its final report three principal sales organizations were in operation controlling about 40,000,000 tons of annual output. Notwithstanding the material advantages of the new methods, it became apparent that the most satisfactory results could only be obtained if the sale of mine products would be handled more advantageously through an entirely separate organization managed by a firm of salesmen under the direction of the owners. This suggestion resulted in the birth of the Rheinisch Westfalian Coal Syndicate in 1892. Its purpose and organization are as follows:

The present contract expires December 31, 1915. Its purpose is to buy and sell coal and coke and to acquire mining fields and

shares in mining companies. The capital is \$600,000 divided into 8,000 bonds of \$75, this capitalization being based on 80,000,000 tons of production. Each member of the Syndicate must acquire one bond for each 10,000 tons of annual output. The management is entrusted to a board of two or more members selected from the directors and twelve members, three of whom change every year. The managers are elected at the annual meeting of the bondholders.

The tonnage allotted to each company is fixed by a commission of eight members. The syndicate buys and pays for all the coal covered by allotment. No coal can be sold by any producer except to the syndicate. Syndicate members must put the output of all mines in the hands of the organization, whether owned wholly or in part, except, of course, such coal as is required for mines' own use as fuel or for coking and briquetting. There is also excluded the coal used in furnaces, briquet plants and other manufacturing plants owned by the mining company. The mining company must furnish the quantities agreed to and the syndicate must market it. Should the syndicate not be able to take the maximum quantities for any mine, it will pay the owner a sum of not more than forty cents per ton of such shortage. Mine owners may arrange with other producers to make up any shortage before they are liable to the syndicate.

Mine owners receive monthly settlement for shipments, an average price being fixed upon each grade. Each company is subject to deductions if the coal supplied is of inferior quality. The syndicate assumes losses of bad accounts or if coal is sold at prices below expected minimum. By this means all operators share equally in losses beyond control due to the lower prices than were contemplated at the time contracts were made.

The operating expenses for the syndicate are obtained in the same manner. The coal selling contracts and the general allotment of tonnage are made annually.

The mines owned by the Government have, since 1905, sold their product in competition with the syndicate. It is believed they will, later on, join the syndicate.

The advantages claimed are that the syndicate has eliminated unnecessary and suicidal competition and has placed the coal industry on a basis which enables the operators to produce coal at a reasonable profit, in consequence of which they are able to pay the miners a fair wage and to furnish better protection against injury than was possible under the highly competitive conditions previously existing. The increased profit has warranted the better

equipping of mines with modern machinery and appliances. The advantages to the coal consumer has been the elimination of fluctuations in price by depression to low figures in a time of surplus and by rises to higher prices during a time of shortage. Under the plan adopted the consumers receive a more uniform price and the large consumer does not get a low price at the expense of the small buyer who may be compelled to pay exorbitant figures. Through the syndicate all mines operate uniformly, thereby preventing the shifting of the working forces with its entailed expense upon employes and employers alike.

The syndicate has, through the establishment of agencies and arrangement for shipping facilities, made possible an efficiency in the marketing of coal which cannot be reached by the individual producer. The standard of preparation has been raised and the product of the syndicate mines can successfully compete, even at a higher price, with the product of other countries, by reason of its large resources and ability to carry out its contracts.

It would take columns to give the details of this organization which now controls an annual output of 80,000,000 out of the 85,000,000 tons produced.

It is possible that others will profit by the great work accomplished after many years of endless effort.

Indicative and impressive is the inscription on the syndicate building entrance reading:

“UNITY MAKES STRENGTH.”

The Condition of the Bituminous Coal Industry.

BY A. J. MOORSHEAD,
ST. LOUIS, MO.

You will, I am sure, regret as I do that Mr. B. F. Bush, President of the Missouri Pacific Railway, could not, as the original program provided, be here and present to you his own ideas and opinions of the present condition of the bituminous coal mining industry of this country, because his experience as an executive and operating officer in connection with coal mining has been so extensive (covering operations in the greater part of the coal fields from West Virginia and Pennsylvania in the east to the Pacific coast) that it would be as instructive as it would be interesting.

So varied are the underground conditions and methods employed in coal mining in the state of Illinois alone, both with reference to the seams being worked (from thirty inches to ten feet in thickness); the wide range of prices per ton paid to the miners; difference in quality of product; the variable cost of putting the coal into the cars for the market; that it makes a somewhat intricate and difficult subject to handle, particularly when coupled as it is with the attempt in our dealings with the Mine Workers' organization to make each district fairly competitive with all others in the marketing of the product; therefore, the subject covering the entire country can only be reviewed in a general way.

With the exception of two or three states and some particular districts in some states the industry was in a reasonably prosperous condition prior to the fall of 1907, when a general business depression occurred, and, with others, the coal industry suffered a material curtailment in production and a general lowering of values at that time. During the following year the production declined some 64,500,000 tons, but this loss in production has been subsequently overcome, and the figures for 1910 record the largest tonnage in the history of the industry.

Prices, however, recovered slowly, but increases in cost of production have been general in every mining region, due to the public demand for more careful mining, better protection to the miners and to the higher wage schedules which went into effect during 1910.

With the further decline in prices during the current year the situation has become a serious one, and in certain competitive dis-

tricts where competition is unusually keen and where low prices have steadily prevailed for the past four years, many of the operators are dangerously near complete bankruptcy, and some means must be devised to relieve this situation if it is possible of accomplishment; otherwise the failure will be seriously felt by manufacturers and retail dealers everywhere.

Source of Information.

In order to obtain the most authentic information possible along these lines, the Secretary of this Congress sent out blanks to all the principal coal operators scattered throughout the country, making inquiry along the following lines:

First. Capital invested in business.

Second. Average total cost of production.

Third. Average labor cost per ton (mine workmen only).

Fourth. Average cost of administration.

Fifth. Average selling price at mine.

Sixth. Estimate of increased cost necessary to meet demand for conservation.

Seventh. Average depreciation of values per 100 tons daily capacity.

Eighth. At what price coal must sell.

Ninth. What percentage of coal is sold at a loss.

Briefly stated these statements revealed the following conditions:

That for every ton produced annually there is an average investment of \$1.41 in coal lands, machinery, and equipment necessary to that production. These statements show that increases in cost of production have been general in all States, varying from a fraction of a cent in States like Tennessee and Kentucky to 28 cents per ton in the Southwest. The average increase is near 7 cents per ton in all fields. Indiana was benefited by steady work following the last strike, and the higher selling prices which prevailed at the time enabled those operators to earn a little profit.

Increased selling prices are generally reported for 1910 averaging 4 cents per ton, but it is not sufficient to offset an increase of 7 cents per ton in production costs, during the same period, so the year as a whole shows a decline in profit.

During 1910 the total cost of production is estimated at \$1.07 per ton. The cost of mine labor and mine supplies total 95 cents per ton, and the cost of administration, such as office expense, sales expense, accounting, insurance and taxes, legal expense, etc., usually

classed as general expense was 12 cents per ton. This does not include interest, depreciation or profit.

The average price obtained at the time was approximately \$1.11 per ton. The increased cost necessary to meet the demand for conservation was estimated in different fields from 2 cents to 15 cents per ton, with a possible average of 5 cents in the country as a whole. The depreciation of coal reserves and plant equipment would require a fund of approximately 4 cents per ton.

The increased prices necessary to make the business show a fair return on the money invested ranged from 5 to 25 cents per ton in various regions. The average increase requested would approximate 12 cents per ton.

Reports Indicate Astounding Conditions.

These reports indicate astounding conditions existing in the bituminous coal industry at the present time. It is undoubtedly true that there are many individual operators, or even entire districts, where unusual mining conditions, favorable quality of coal, proximity to large consuming centers, or scientific management, enable certain companies to show profits even under present conditions, but it is also true that there are many more showing heavy losses, and an industry of so great magnitude must be considered as a unit in a matter of this kind. Let us, therefore, make a closer study of the more important questions, such as production and consumption, costs and realization and their effect upon the industry as a whole.

Statistics show that while our bituminous coal production increased rapidly from nothing in 1821 to 1,111,156 tons in 1842; to 10,625,381 in 1865; to 105,268,963 in 1891; to 306,138,096 in 1906; and to 415,500,000 tons in 1910; our consumption kept ahead of or apace with production until 1891. In 1821 consumption was 19,617 tons in excess of production; in 1842 it was 123,879 tons in excess of production; but in 1891 the total consumption was only 105,016,407, or 252,556 less than production, and the difference has steadily increased until in 1906 consumption was 6,002,051 less than production. The excess of production over consumption has steadily increased each year, and has resulted with mines operating to a restricted capacity.

A further example of our over-production and still greater over-capacity was demonstrated during the strike period of 1910 in Illinois, Indiana and the Southwest:

Illinois was idle six months of the year, but produced 45,900,246 tons, as compared with 50,904,990 the previous year, working twelve months.

Indiana was idle some thirty days and produced 18,389,815, as compared with 14,834,259 in 1909.

Oklahoma, Arkansas, Kansas and Missouri were also idle six months in 1910, due to the strike, and the production showed an average decrease of only 20% under the figures for 1909.

The possible capacities of West Virginia mines is fully 75% over the present total production. The Pittsburgh and No. 8 Ohio districts are reduced to 30% operation during three to four months of each year, while navigation is closed on the lakes. There are very few properties that have operated over 225 working days per annum during the past three years.

This over-production and over-capacity to produce has resulted in a ruinous competition to obtain business. Many of our coal properties have fixed charges in the nature of bonds and other obligations, such as minimum royalties, etc., which necessitate maximum production, and in many cases the management figure their losses less by taking the low prices and operating full time than by obtaining their proportion of profitable domestic business.

The development of so many new high-tonnage plants in recent years has also had a marked effect upon the industry. When it is realized that our production and consumption to date have practically doubled every ten years, the large increase in the number of new mines can be appreciated. The "deadwork" haulage, drainage, and ventilation costs are always lower in new development, on account of the concentrated area under operation, and they are able to produce coal much cheaper than their older competitors. They fix the prices in the markets which must be met by the other mines, but in time they have the same situation to face. To meet this competition, underground development is too often carried on in such parts of the mines as can be made to produce cheaply and in order to escape the heavy yardage prices, excessively wide entries are driven, and this condition coupled with the narrowing of pillars in order to lessen the cost of operation, ultimately causes heavy falls and squeezing to such an extent that the mines are robbed of half of what would otherwise be their natural existence, and in their early abandonment large acreages of coal are wasted without hope of recovery.

Statistics show that the average prices received at the mines during the past seven years are as follows:

1904	1905	1906	1907	1908	1909	1910	
1.10	1.06	1.11	1.14	1.12	1.07	1.11	est.

The average price for the entire period has been \$1.10 and the fluctuation between the maximum and minimum prices has been only 8 cents per ton. It is also interesting to note that the prices for 1910 and 1904 and the average price for the period are practically identical.

Production Cost Increases Seven Cents in 1910.

During 1910 the increased cost of production as compared with the previous year is estimated at 7 cents per ton in all fields. Some idea of the increased cost of producing coal can be obtained from the following table, which shows the mining rates in the four largest States operating with organized labor. All other districts show similar increase but the amount is difficult to ascertain:

	Base Rate Ill.	Ind. Mine Run.	Bitum. Lump.	Thin Vein W. Va.	Rock Ohio Lump.
April 1, 1898, to April 1, 1900.....	40c	40c	66c	66c	66c
April 1, 1900, to April 1, 1903.....	49	49	80	80	80
April 1, 1903, to April 1, 1904.....	55	55	90	90	90
April 1, 1904, to April 1, 1906.....	52	52	85	85	85
April 1, 1906, to April 1, 1910.....	55	55	90	90	90
April 1, 1910, to April 1, 1912.....	58	58	95	95	95
Increase, 14 years.....	18c	18c	29c	29c	29c
Equiv. on run of mine basis....	18	18	18.74	18.74	18.74

The above increase applies only to the "mining rate"—that is, the amount paid to the miner for loading one ton of coal at the face, and proportionately higher wages are paid to all other mine workers. The full increase in cost of labor per ton over this period is, therefore, approximately 27 cents per ton, and approximately 9 cents of this increase has been taken since 1904.

With prices practically stationary during this same period the profit to the operator shows a net decrease of 9 cents per ton.

We have already stated that for every ton produced annually there is an average investment of \$1.41 in coal lands, machinery, and equipment necessary to that production.

Based on an annual production of 415,000,000 tons of bituminous coal, there is an investment in the business of some \$585,000,000. An investment in an industry of this nature, carrying the risks to life and property which the mining industry does, and the hazard of faulty conditions of seam, which no man can definitely foresee, should net at least 10% in return as interest on the capital

invested, after setting aside a sufficient amount—estimated at 4 cents per ton—to cover depreciation of equipment and exhausted coal lands.

The mining industry should net to the owner annual earnings of \$75,000,000. They earned \$16,600,000 in 1910, and the current year will show still further reductions. In other words our coal operators are absorbing as losses in excess of \$58,500,000 per annum, or slightly in excess of 14 cents per ton.

Solutions Suggested.

Over-production is the cause of this extremely deplorable situation. It has created a destroying competition in which only the strongest can survive. It has caused a general unrest in the industry and dissatisfaction to mine owners and mine workers alike and the question before us is how this over-production may be taken care of and the business placed on a remunerative basis. Two solutions are suggested.

First. The creation of district sales agencies to handle the entire product. Those agencies would control the total output and name prices which would return a fair profit on the investment and at the same time permit the necessary expenditure for conservation of resources and careful and safe mining. Such agencies would result in a very large reduction of the present sales cost and by concentrating the mining operations the ultimate cost to the consumer would probably show little increase. These agencies could maintain a more uniform distribution and by concentrated effort could probably reach new markets which are not being supplied from the United States at present.

This plan would require the alteration of the Sherman anti-trust law and the creation of an interstate coal commission. The commission would have to pass upon the justness of prices established by the various district agencies, to see that owners obtained fair prices only, and to hear the public voice in reference to such matters. The commission should also control the opening of new mines in such a way as to keep production and consumption apace with one another.

Second. The Government could assist in the development of foreign export trade. A large percentage of the total production of this country is available for profitable export, and by directing the surplus production from Eastern Pennsylvania and Eastern Virginia, which is now encroaching upon the trade formerly enjoyed by Illinois, Indiana, and Ohio, the solution would at least be partly reached.

Other countries have had their coal problems similar in all respects to our own as now existing.

Great Britain met it by the most careful of mining methods and preparation of the product; and combination with transportation interests has gained for her the markets of the world for her surplus, at highly remunerative prices, and this result is only possible by continuous operations and large export shipments. British exports have been:

In 1907.....	63,600,947 tons
In 1908.....	62,547,175 tons
In 1909	63,076,799 tons
In 1910	67,085,476 tons

It took Germany many years to perfect a coal syndicate, which under a single sales agency with the co-operation of the government, has produced substantial returns to the mining companies, and at the same time increased the export tonnage; and there was shipped in this particular class of trade:

In 1909.....	10,321,536 tons
In 1910.....	10,963,195 tons
In 1911.....	12,614,952 tons

Belgium, mining in places only 11 inches of coal, and at depths exceeding 3,500 feet, had problems to solve more serious than ours. She met them by consolidation and single sales agencies, and these agencies get prices which represent fair returns in capital investment. They get them by co-operation with the French and German syndicates.

The French laws, as we understand them, are much in line with our own trust laws, but there, too, syndicates exist and regulate prices and work in harmony with the other continental syndicates.

The second solution, therefore, of the problem lies in the exportation of our surplus production. The coal tributary to the Atlantic and Pacific seaboards is the equal in quality of that produced abroad. Government assistance in the shape of a bonus or subsidy would, therefore, not only solve the coal problem, but also the question of the rehabilitation of the American mercantile marine.

The above plans are simply suggestions briefly outlined for consideration by this convention and those interested in the industry.

It is self-evident that the operators must join in a plan which will protect their investment and at the same time permit healthy and sane competition.

It should be the duty of this Congress to carefully consider ways and means of working out the problem; additional legislation is necessary, and capital, together with labor and the consumer, should appreciate the benefits to be derived from placing an industry of so great magnitude upon a substantial basis.

Germany and Great Britain have met the same conditions successfully by extending the necessary aid to their coal industries. Is not the coal industry of the United States entitled to the same consideration?

Mining Congress Can Bring About Relief.

Wonderful results have been accomplished for the benefit of agriculture by the National Government appropriating from \$20,000,000 to \$40,000,000 per year for the last twenty years for that particular industry, yet mining—important and hazardous as it is—has received but little consideration. This organization can, by thorough, concerted and determined action, not only arouse public interest in our cause, but the state and National legislators will, beyond doubt, when the conditions of the industry are properly made known to them, afford relief no less generously than Great Britain and other foreign governments have done.

Now, Mr. Chairman and Gentlemen, there is only one way that we can expect to get relief, and that is not wholly and solely by the preparation of papers like this nor by oratory on this stage. Both are necessary to arouse interest, but what we should do as coalmen is to try and make this Association, this Congress, strong as it is, more powerful, by adding to its numbers all other coalmen it is possible to convert and bring into its ranks. Then by the proper application of pressure that we could then bring to bear with the aid of our friends from the Western States engaged in other classes of mining, and we assisting them as they do us in things deserving, we will accomplish what we go after; and I hope that the coalmen of Illinois, a competitive field, and in fact the country, that have been so seriously affected and depressed by the competitive conditions surrounding us, on matters that we seemingly are unable to control ourselves, that they will join this organization and make it strong. I hope the organization will be so changed that it will have State organizations. Then we can get together, formulate plans to do business in a way that I am sure the Government representatives will permit. (Applause.)

The Condition of the Bituminous Coal Mining Industry.

BY WALTER S. BOGLE,
CHICAGO, ILL.

Mr. Chairman and Gentlemen of the Convention:—I was not aware until night before last that I would be expected to address this convention. I was not present at your session last evening, but from what I have heard it seems to me that conditions and relief have already been very ably presented, and as a result I can only touch crudely and briefly on the matter and perhaps repeat something that has already been told you.

The condition of the coal trade is such a painful subject that I don't care to dwell on it. The important question in my mind is relief. Who has got it, and who is going to lead us out of the wilderness? Many bright minds have given this subject careful consideration, and many plans have been presented, but when analyzed they present one of two alternatives—either a company large enough and with capital enough to absorb all operations in a district or state or else combinations among the operators themselves. The first alternative is apparently impossible, because the credit of the coal trade has declined to such an extent that the public refuses to buy coal securities and no financier can be found able and willing to underwrite them. Another difficulty has presented itself along that line, and that is there are men in the coal trade who are proud of their long and honorable career, who have built up a valuable clientage, and who refuse to lose their identity. Who can say them nay? It is a privilege that belongs to every American citizen, and I hope it always will, furthermore, I hope it will be encouraged, because it is along those lines that I believe we will get the best development in our commercial life. Of the other plans presented, many have merit, many would fit the situation, but they all violate the Sherman anti-trust law, and that is the end of them. Until the Sherman anti-trust law can be changed or modified I can see but little relief in sight. The Sherman anti-trust law, like many other laws on our statutes, was passed hastily and without due consideration of the results that it would bring about. The object of the law was good, and that was to restrict combinations and every self respecting business man or citizen of this country will stand for a law that will accomplish that. They want such a law on the statute books, but in order to accomplish

that, the Sherman anti-trust law compelled unbridled competition, and in its actual operation has been bringing about the very object for which it was passed to prevent. Unbridled competition means the survival of the fittest, the strong against the weak, the weak falling by the wayside and being absorbed by the strong, and while the process is slow it is none the less sure, and the ultimate result is a combination of interests similar but perhaps on different lines than the law was passed to prevent. In many industries in this country the law has brought the individuals up to where they have had to make a choice as between bankruptcy and violation of that law, and they have not hesitated to violate the law and take the consequences, if they were caught, rather than to go into bankruptcy, and I am not brave enough to blame them. But any law, the operation of which produces such results, is wrong. It is a damage to any community and should be changed.

I believe I have been a consistent friend of labor since I was a boy, but I cannot resist calling attention to the difference in laws governing capital and business in this country, and the laws governing labor,—one compels unbridled competition, the other permits unrestricted combination. Now, few of us object to labor organizing; we look upon it as a necessity, at least many of us do, but the organization of labor without any restrictions whatever, has legalized the greatest trust that ever was known to man. It is governed by the same human minds, the same human passions, the same human greed, the same human selfishness that governs any unrestricted combination, and it is not to be wondered at that it is rapidly developing all of the obnoxious and all of the bad features of an unrestricted combination.

The problem or the work that is laid out for us appears to me to be a campaign of education, which will bring about a change in this law. That may seem quite an undertaking to many of you, but it is not as great an undertaking as it would appear to be on first consideration, and the time is ripe for it. The business of this country is largely paralyzed by the uncertainty of how that law is going to be applied. The Supreme Court of the United States has said that a reasonable combination is all right, but the construction of the word "reasonable" would vary as frequently as there are "individuals," as the construction of it would be governed largely by personal interest. But there is a statement on the part of the highest court in the land that under certain conditions combinations are reasonable and should be enjoyed, and it is right and proper that Congress should define absolutely and clearly what is

reasonable. The American people will uphold you in that demand. The American people have never wilfully visited any unmerited hardship on any individuals or any corporations, or any body of men, and they never will when they understand a question thoroughly. Where they have been educated to understand a question their decisions have been invariably right. A very good proof of that is this, that today there is a rank violation of this law, that is not only approved of, but is upheld by them, a violation of this law that has been declared such by the Supreme Court of the United States. It is not only approved of and upheld by the people of the United States, but it is approved of and upheld by one of the greatest executive and I might say governing bodies of the United States, and that is the railroads of this country are allowed by the Interstate Commerce Commission to establish uniform rates, or agreed rates, on freight and passengers, and when they do it in my opinion the Interstate Commerce Commission take the only practical and sensible course that is open to them. It is a necessity. Without it the railroads would be unable to furnish the necessary facilities to accommodate the commerce of the country and a continuance of unbridled competition between them would result in bankruptcy for many if not all. Either of which would be a public calamity. Everybody would feel it, and there was only one practical course open and that was a reasonable combination, and that is what they are acting under today. Now if that is necessary for the railroad world, certainly it is equally necessary for the commercial world. If the railroad world is entitled to that consideration, then the commercial world is entitled to that consideration. I don't wish to disturb that situation. On the contrary, I would lend what assistance I could to maintaining it. I simply refer to it as an example of how this matter works out, and of the necessity that exists and the many arguments that you have at your command to bring the pressure necessary to remove this burden which is rapidly becoming greater than the disease. (Applause.)

Sherman Anti-Trust Law With Special Reference to the Coal Mining Industry.

BY D. W. KUHN,
PITTSBURGH, PA.

Down in Tennessee, a good many years ago, the supreme court of that state, in its interpretation of the exemption laws, held in an elaborate opinion that a mule was a horse, and has ever since stuck to that decision. The Supreme Court of the United States, with a purpose unquestioned, in its interpretation of the Sherman act in the last twenty years, has sometimes as much as said that a mule was a horse and at other times that a mule was not a horse. The country at large at the present time entertains a similar hazy and uncertain opinion of that act and the baffling decisions on it. There seems to be, however, one striking exception, and that is, the distinguished Attorney General of the United States, who entertains a different opinion. He believes that every horse is a mule, and for that reason should be subjected to "condign punishment." One of the mysteries connected with this statute is that no one has been able to maintain the same opinion about it for any length of time. The authors of the act were not even of the same opinion as to what it meant. The political party that fathered it has sought to change it. The Supreme Court of the United States in 1895, in the Knight case, held in effect that industry—production—was not within the statute, and then reversed itself in other decisions. Some of our statesmen have see-sawed on the question—have at one time favored a liberal construction of the act and at another time insisted that it should be given a strict and literal construction. The Department of Justice through successive changes of party politics, however, maintained for a long time the same opinion. The Attorney Generals of the United States from the Cleveland administration down to the present administration have held that the application now sought to be made of the act was not a valid one. And ex-President Roosevelt, who started the so-called anti-trust proceedings, has condemned it in a pointed and emphatic declaration. "So incapable of enforcement," to quote ex-President Roosevelt, "as to make decent men violators of the law against their will and to put a premium on the behavior of willful wrongdoers."

In view of all this, is it mere industrial resentment that inquires

"Where are we at?" And where such meandering and divergence of opinion are held by statesmen and the high courts of the country is it to be wondered that the common mind of the country, engaged in the battle and strife of competition, is bewildered?

The passage of the Sherman act was a combination of militant morality and political expediency—the worst kind of a combination. The literal enforcement of that drastic statute would have blighted industry as nothing else ever did in a modern commercial country. There is nothing capricious in the development of industry and commerce. They are always a growth; any extrinsic attacks quickly disturb them, and efforts looking to their revival are always prolonged. "Military morals can direct the axe to cut down the tree but it knows nothing of the quiet force by which the forest grows." The concentration of industry, the adoption of corporate combination in business is not the secret method of some monster of finance whom we have pictured to us as the acme of everything gross—it is the natural and necessary attendant on industry and commerce in the wonderful inventions that multiplied and intensified production, and which has almost put the markets of the world at the entrance of every plant and mine. But laws that run counter to the spirit of the age are remembered in a short time as only so much legislative bric-a-brac. This country has had an experience of an unfortunate kind with fiat money. And the enactment and maintenance of drastic laws against industrial corporation and corporate combination in line with the best practice of all commercial countries will be no more effective than the solemn government stamp of a dollar on a piece of stiff paper. Both are species of legislative paternalism that sooner or later die out; both belong to earlier and cruder ages, and are found discarded by other countries which are guided by practical experience and by enlightened methods. The trend of commerce and trade in the same form or mold is worldwide. Local peculiarities and provincial customs fall away. The use of similar inventions, similar money markets, similar competing trade conditions arise in all countries so that industry and commerce are becoming a uniform industry and commerce.

No man, no body of men, who consider the question in its broad aspects can believe that the Sherman act was passed to meet the conditions of the great and growing industries of this country. Certainly no one can read the act and say that the conservation of industry and commerce is contemplated in it; and that defect alone is sufficient to warrant its prompt repeal or

amendment. Voltaire, I believe, said that the repressive laws of a country were the true measure of its backwardness, and by that test our country has reached its majority in ignorance, for the act has been a law just twenty-one years.

To empirically declare, as do the provisions of the Sherman law, that combinations in restraint of all forms of competition are not lawful, is so sweeping, so un-American in spirit that we do not wonder that the Supreme Court of the United States resorted to the broad principles of construction in seeking to give a meaning to it. Conduct which was heretofore regarded as exemplary is condemned under the prohibitions of the Sherman act in the same way that actual fraud is condemned; there is no line of demarkation between virtuous and vicious acts. The law in its sweeping condemnations does not recognize that there is such a thing as virtuous corporate conduct. At one time the members of the convention in the French Revolution held that an individual had no right to be either virtuous or celebrated in their eyes. The noisy proponents of the anti-trust laws, like the ancient Bardolph, with more vigor than understanding, declare that the business of the country has no right to be either virtuous or prosperous.

Sherman Act Repressive, Not Remedial.

The Sherman act is not in effect a remedial law, but one of repression. It was passed in the heyday of corporate orgies that followed the Civil War, and it was prompted by something of a revengeful spirit—that the business of the country at that time must be impressed with a wholesome terror of the law. It was the law militant in all its harshness. Terror is the keynote to that statute, and it was its sweeping and terror inspiring provisions that made it a dead letter for so many years. Those who advocate its enforcement are fired by the same noble zeal that inspires the Western town marshal, in “shooting up” the town for one “bad man,” to kill a dozen of the best citizens. It is a good illustration of how *not* to draft a Federal statute touching anything as delicate and important as the business of the country.

Seth Low raised a true question when he asked, will the “people who have constituted the greatest republic in history by the combination of many states, even for a moment, deny to its own commercial agencies the opportunity of giving better service by proceeding along the same line?”

Many of the states have enacted so-called anti-trust laws, patterned after the Sherman law, the literal enforcement of which

would blight commerce and industry as would the plague. They are kept on the statute books as a token of political probity and as a legislative threat against industry, and not as a constructive policy to regulate commerce.

The Sherman law has developed another phase which in time will only breed trouble. The Supreme Court of the United States has stated that the Sherman law covers combinations and conspiracies of labor as well as of cases of that kind in business and industry. Labor in its reaches of development has infringed the provisions of the Sherman act. We feel sure that there will be no prosecutions of the so-called labor trusts, and it would require a stretch of imagination to fancy the beginning of proceedings of that character in political years. We do not dispute the right of labor to organize, but we do insist that the same law and the same rule of conduct which have been prescribed for both should be enforced against both in the same way; and if it is not so enforced, we not only have a bad law on our statutes but we have adopted a policy of insincerity and hypocrisy in the enforcement of law.

Any statute or law that inspires fear or apprehension in business or industry, which can stand the test that is universally regarded as lawful, is a menace to the country, and the Sherman Act today is a wet blanket upon industry. We are told now that whatever rough edges the statute had, the two recent important decisions have made its meaning clear, but the fact that the most casual reference to the status of the law by either the President or the Attorney General directs the attention of the whole country, shows that there is honest doubt as to the rule of conduct now prescribed. In earlier times every man had his confessor to help him meet the exactions of his overlord; today every man engaged in business or industry, or hoping that he may stay there, is seeking his lawyer for advice, but unfortunately, the lawyer is more in the dark than his client.

No one can read the decisions of Chief Justice White in the Standard Oil and Tobacco cases without being impressed with a sincerity of purpose worthy of that high court, but the resort to well-known rules of statutory construction cannot in the nature of things formulate a constructive policy for the commerce of the country, and, say what we will, it leaves the rights of the industries in an insoluble dilemma. The trouble is not so much with the court as with ourselves; we expected the Supreme Court out of a single statement of facts in the cases before it to formulate a policy which would at once comprehend all possible cases, and because the court

failed to promulgate a comprehensive policy from its interpretation of that cumbersome statute it is criticized. The court was never intended or fitted to perform such functions. We pass crude and impossible economic laws—economic laws which have their origin in some fit of public indignation or emotion—and throw on the Supreme Court of the United States the burden of making them intelligible, flexible and responsive to the conditions of the country. We seek to have the court exercise powers never granted to it and make it assume a task impossible for it to fulfill. But the court, no doubt, in the two recent decisions made a rift in the cloud of confusion and uncertainty regarding the statute.

Belongs to Period of Blood-Letting in Medicine.

We are told now that we must go back to the period of old fashioned, unlimited competition to avoid what is supposed to be worse—socialism, that business was done to a considerable extent in those earlier days and that it can be done again. Among some of the heirlooms of that period, not so long ago in this country, we find laws that sought to correct business abuses by imprisonment for debt. We revived the spirit of those corrective laws in the Sherman act, but we now seek to imprison people for seeking to keep out of debt. The Sherman act and the spirit which prompts the maintenance of such laws belong to that period—the period of blood-letting in medicine.

No modern country has ever been more unfortunate than ours in its laws which affect the prosperity of the people and the economic conditions of the country. Our unscientific banking laws, prompted largely to revenge certain practices at the time of their adoption, have often brought the prosperity of the country to a halt. The depreciated money craze, with all its ignoble history, followed in the wake of that bad legislation, and if we are to make the attack on the business of the country a political status now, we certainly will show that we possess a genius for doing the wrong thing in our over-production of legislation.

The protective tariff, which has been the main issue of a great political party for half a century, was made a law to benefit and foster the industries of the country. This protective tariff was one of the earliest forms of conservation. Whatever evils it may have developed, it originated at least from a desire to foster the business of the country, and yet those who favor a protective tariff must admit that we checkmate the benefits of that protection without eliminating the evils of the system by the enforcement, or threatened enforcement of such laws as the Sherman act. We

hear much today about the conservation of our resources. It sounds well, and we like high sounding terms in this country, but it is a travesty to advocate the policy of conservation and at the same time maintain laws that keep the coal mining industry of the country in its present plight.

The statement is made by a high authority that aside from the loss of life, the injury and loss sustained by the country from the enforcement of the Sherman act, and its threatened enforcement, the last few years has been equal to that sustained by the country during the Civil War. Are there not limits to be placed on repressive laws as well as on the limits of corporate greed?

We are, above everything else, an industrial country. Our industries are the portend of the United States. American initiative, American inventive genius and our vaunted resources have made us so, but the victories of industry in the world today are won only on the sovereign field of reasonable freedom—not by license to destroy competitors nor by unlimited competition. Is it not about time that this country should consider the great body of industry, conducted in the main properly, as well as to consider only the evils found in it? What is the natural and instinctive conception, unbiased by prejudice, politics or greed, for the necessity of a law to meet the industrial conditions? It certainly is not the Sherman act or its present status. Converting the Department of Justice into a Federal police department will not correct and at the same time build up the industries. In the first place we must remember that concentration, which is one form of conservation, is fundamental to industrial life and health. From some of our past failures this country should profit by the methods adopted in other commercial and competing countries, where they promote their industries for the public good, and at the same time prevent coercion, force and fraud. Germany in the last twenty-five years has made the greatest advance in industrial development ever recorded by any country. It is recognized that her industrial supremacy is the result of definite and deliberate statesmanship begun shortly before the passage of our Sherman act. Combinations with wholesome restrictions are not only permitted but are encouraged in Germany. Our country, whether it will or not, is being forced into foreign markets with its manufactured products. Its export of food products must in time decrease. In the United States the population in the last thirty years has increased 85% and its foreign trade 50%. In Germany during the same thirty years the population has increased 35% and her foreign commerce has increased 250%. Germany is an importer

of foodstuffs and raw materials, whereas the United States grows the one and finds the other at hand. And unless we promptly adopt in this country a well settled and constructive policy looking to the maintenance of our industries we will seek a lower level in the race for foreign business. From an impregnable position of industrial supremacy we will be reduced to an aggregate of industrial fragments if we do not meet the situation with something constructive, as well as corrective.

Doctrine Inherited from England.

We inherited from England the doctrine of restraint of trade. About the time our country was first beginning to interpret the Sherman act, England met and passed upon similar industrial and trade combinations. While following the same common law, the same precedents under it and the same rules of construction, England held that combinations unattended by coercion and fraud were a benefit to the public and entirely lawful. The English decisions are illuminative of the "perpetual quest for justice" in England, and of the operation of its law as a servant of the general weal.

Germany, England and France have fostered concentration and industrial co-operation. They have found no evils growing out of them that cannot be purged without resort to destructive methods. Human nature certainly is no worse here than in those countries, and yet we seek to repress and destroy such forms of industrial growth. In our crude legislative and administrative efforts we tear down where we should build up. We "make a solitude and call it peace."

Canada, which refused our reciprocity agreement, and which believes that we have dissipated our resources, has recently adopted a constructive policy for meeting conditions of corporate business. Our country and Turkey are the two nations of the world that hold fast to the antiquated doctrines of repression and destruction for the elimination of evils.

In this and all other commercial countries coercion and fraud are condemned, and these evils are prohibited without the necessity of the enactment and enforcement of so-called anti-trust legislation. A homely and sensible requirement, to make every dollar of stock represent an actual dollar of money or property, would benefit the country in a much higher degree than any drastic piece of anti-corporate legislation. As long as the actions of corporate combinations are not maintained in secrecy, but are susceptible to public examination, we need never fear a recurrence of former trust evils.

Publicity in corporate conduct in any country is what sunlight is to sanitation. In the countries which should furnish some guidance in these great questions, it is publicity in some form that is the directing force in the maintenance of their high industrial success.

If we ever do enter upon a full return to unlimited competition, which will necessarily be fiercer than in former times, no one can doubt but that the battle will be to the strong and the cunning, that the weaker ones will go down, and that the victors will develop strength in proportion as the others grow weaker, and then we are back where we started, with nothing gained and much lost and wasted, and with more than an even chance of a recurrence to the vicious forms of monopoly. In order to prevent such conditions it is not necessary to have business men, purely as business men, run the government, but we do need a display of industrial statesmanship—statesmanship that has an eye for the upbuilding of industry on proper and constructive lines.

This country has, in a few years, not only developed a policy of conservation, but a militant policy of conservation. Conservation means not only the preservation of the forests and the minerals, but it means the protection and upbuilding of the industries. Among the Falstaff army of industries in this country, too poor to fight, too cowardly or too virtuous to steal, the coal mining industry presents itself as one of the most bedraggled members of these ragged recruits. The coal mining industry, as it exists today, is a powerful protest against the fragmentary methods of doing business which are sought to be impressed on the country. One of the engaging consequences is that the consumers of fuel will in a short time pay in heavy excess prices for the present dilapidated condition of that industry. And it is strange, indeed, that those who apparently seek and consider the welfare of the people are so blind to obvious conditions—conditions which of necessity must work a hardship on the great body of the people. If it were not so serious it would be one of the ironies of our combination of politics and statesmanship that a great industry is put to it not only to plead for a living existence but that it must plead for the protection of those whom it serves and those whom it employs. In that begging attitude it stands now, and has stood for some years, and to all intents and purposes its appeals have been to deaf ears.

The Truth About the "Coal Baron."

A simple and striking exaggeration fixes a notion among people much more easily than a full and accurate truth. The moment a newspaper begins to talk about a "Coal Baron" there immediately

arises in the minds of many people a griffin clawed monster of untold power crushing the life out of toiling labor in the bowels of the earth, and dragging down to poverty and ruin the consumers of coal. Coal barons are like ghosts—no one ever saw one, but for that reason alone ignorant people believe in them. The coal operators are about the last class to whom such a term should apply, for, if there is any one that is between the upper and nether millstone it is the coal operator.

If the passage or construction of some ugly looking piece of legislation under which somebody or everybody could be prosecuted, or more especially threatened with prosecution, would change the coal mining industry for the better, it would no doubt be done with promptness and dispatch. No one values more highly the uses of the Mining Bureau, or more admires its Director, Dr. Holmes, in his awful task of uplift work, than I do, but the Mining Bureau, so far as it concerns the needs of the coal mining industry today, is like a raisin in a loaf of bread. We are told that the national government is necessarily limited on constitutional grounds in what it may do for the coal mining industry—that the several states and the industry itself must work out its improvement. All this sounds very well, bears the stamp almost of judicial declaration, and there is only one objection to it, and that is, that it is not true. Let us look at these governmental obstacles. The Mining Bureau and the Geological Survey have investigated the coal mining industry, they know the real and true conditions, they know what causes the tragedy of the mines, they know what causes the waste and dissipation of resources, life and energy in mining operations, they know what will prompt exorbitant prices for fuel in the near future and they know what is reducing the available coal resources with frightful rapidity. To what purpose is all this put? They are given the high honor of submitting these reports with their recommendations to the industry and to the public, after which they are duly filed in Washington, not even in a fireproof building, and are soon lost to sight beneath their enveloped dust. The operators would willingly follow these recommendations, but they must conduct their industry in a way which must conform to certain laws, and these laws, such as the Sherman act, negative in effect the ability to carry out the recommendations of the governmental bureaus. The Mining Bureau, after a careful examination of the mining industry in this and other countries, may recommend that the industry should be conducted along certain lines in order, properly, to effect the conservation of resources, the health

and life of those engaged in this underground toil and to foster and safeguard the industry itself. The Department of Justice will say that that is all very well, but even though that is the only proper way to conduct the industry for the benefit of the industry and country, you will, nevertheless, be prosecuted, or threatened with prosecution, if you attempt to adopt these methods. Here, indeed, is a Chinese tyranny which is hard to reconcile with our fundamental declarations.

Not only that, but our state governments are helpless, rendered so by the blight of the statutes of the Federal government. The recent report of the Bureau of Mines of Pennsylvania shows that there can be no progress in conservation of coal resources and of human life in coal mining, until there is a readjustment in that industry in some form of concentration, until laws are made which permit such action.

At the last special session of Congress there were over twenty-five different commissions appointed to investigate something or somebody. There were none appointed to investigate the coal mining industry. This industry for some years has been seeking to have itself investigated, and invites and courts investigation now by any governmental or congressional body. No commission could recommend anything other than what is being advocated by this Mining Congress. Over 80 per cent of the cost of mining coal is in the labor, the cost of that labor plus the cost of only the most essential matters in connection with the production of coal is now greater than the price received for it. A concern that manufactures a toy—the company that makes kodaks—shows by its report that it made over \$8,000,000 last year. The entire coal mining industry from the Mississippi to the Pocahontas hills in Virginia did not make eight thousand cents during that time. It did worse than that, it lost and wasted human life and coal resources, to say nothing of the spent energies of the industry. In this country it has become almost a crime to say that any industry must raise the price of its product, but a higher average price must be obtained for coal. This does not mean that the general consumer will necessarily pay more, it means a general adjustment of prices by which the operator will obtain a reasonable profit.

Selling Coal to Canada at Loss.

Canada, when repudiating reciprocity with this country, criticized us for wasting our resources. And we are selling and shipping to Canada millions of tons of coal a year at an actual loss—depleting our own coal resources and paying Canada to help us injure

ourselves, all of which operates to increase the price to American consumers of fuel. Evidently in some things Canada needed no reciprocity. In a proper readjustment of the industry such losses will be stopped, and in a concentration of coal mining operations in the different fields a movement toward a higher level will be found.

This country need have no fear of a monopoly of fuel by such a movement of concentration. It is much more likely to buy its fuel at a reasonable price in the future by having the industry in this form. There is no more possibility of creating a monopoly in that industry today than there is of creating a monopoly of the elements. The necessities of the country and the industry demand the lessening of the great number of coal mining operations scattered throughout the country. In the present condition everything operates to increase the price to the public now, and to largely increase it in the future. It has been demonstrated that a multiplicity of mines is not wholesome from any standpoint; it causes bad mining, great loss of resources and increases the cost of mining. If coal were inexhaustible it might be a matter of indifference to the country how the industry was conducted, but as that is not the case, and as the readjustment of it is important to the consumers of coal as to the coal operators, it becomes a matter for consideration and action on the part of both.

One of the troubles of the industry has been that it has been insensible to hope so long that it has made no efforts to reorganize. Its sole virtue has been that of endurance. The coal operators are usually long on talk and short on work when it comes to taking action for some plan for reorganizing the industry and withdrawing it from the fragmentary methods that have so long blighted it. As Bismarck said, it is not more resolutions, more discussions, but what we need is some iron and blood in our veins. Now, everything in connection with this industry demands some form of reorganization on lines of concentration. The operators should not only advocate it, but do it, and the government should co-operate in such a movement if that were possible. There must be now some relation between the cost of mining coal and the price for which that coal is sold. It is not necessary to have the government fix prices, nor is it necessary to throw the entire coal industry of the country into one great company.

It would seem now that a reasonable restriction of trade and production is lawful. And in meeting that status of the law a con-

centration of operation in every district should be undertaken by the operators.

If the coal mining industry would actually begin such a movement, work out constructively and put in force an actual merger of this kind, not only a great step forward would have been made, but it would be the dawn of a new era in that industry. Some action of this kind, sooner or later, must be taken, the industry has waited now too long for some one to point the way and undertake to start a movement for improved conditions and a higher plane. And if the operators of any given field would put their energy, their money, as well as their prayers, into such an effort, I believe they would receive their due reward and the approval of the consumers of the country. To take any other course now is a further retreat into the gloom of industrial despair.

Government and Public Warned.

And now I want to sound a solemn warning to the government and to the public. When a miner has to tighten his belt in lieu of something to eat when he is hungry, and a coal operator has to pledge his mules to raise his payroll, this talk about the enforcement of anti-trust laws and of jail sentences is just about as effective with them as "tweedledeeing on melodious catgut." Such declarations may cause those who control and dispense great liquid capital to retire to cover, but the time has passed for that to impress the desperate coal operator and miner out on the firing line.

Excepting some special coals, the coal mining industry has produced its coal at a loss for the last several years in a wild competitive struggle or competitive debauch; it has for the last few years fulfilled every injunction of the proponents of unlimited competition, and the results speak for themselves.

The present wage scale is high if a miner should work eight hours a day 300 days in the year—double the reward for similar work outside. But the miner cannot work more than half time, and his year's reward is meager. To the fierce competition this is due. The operator keeps 50 per cent more miners than are necessary. The operator has to produce a maximum tonnage to prevent heavy losses; and to meet this condition he keeps open large areas of underground workings, filled to the limit with miners; and only that coal is hauled out which can be cheaply recovered. In the last four years the coal operator has met every condition the country sought to put on him, and he has failed. He has done everything except reduce wages. The losses from operations cannot be con-

tinued longer and a crisis is at hand. In my opinion it will reach a culmination next spring. And unless something between now and then is done to reorganize the industry, there is only one thing that the operator can do to reduce the cost line below the present selling price, and that is, to cut wages. This is the last possible resort of the industry, but the operator to maintain his solvency must and will do it.

In my opinion, next spring, at the period of wage settlement with the miners all over the country, there will begin one of the worst industrial warfares this country has ever witnessed. Compared with it the prostration of railroad traffic in England a few months ago will be a holiday affair. The coal mining industry will come to a full stop. We will have a feast of competition. The consumers of fuel will compete with each other for coal when there is no coal to be had. The miner will compete with the operator, pitting his stomach against the endurance of the operator—an endurance of despair. Into the welter of this turmoil the entire country will be brought. All this can be prevented, not by talk, by discussions, by resolutions, but by prompt, vigorous and constructive action. And if it does come, the blame, the vengeful blame of the people, will be placed where it belongs—on the government and on the weakling coal operator, for the blind and indifferent course of the one and the irresolution and weakness of the other.

Anti-Trust Laws in Their Relation to the Coal Industry.

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The sale and distribution of coal in the various coal producing states is in part subject to the provisions of the Federal anti-trust statute, commonly known as the Sherman act, and in part to the provisions of the anti-trust statutes of the respective states. The Sherman act applies to sales of coal for shipment into other states. The state laws apply to sales for local delivery or for shipment to points within the respective states. The mere production of coal, as distinguished from its sale and shipment, is governed by state law alone. Discussion of the federal statute alone does not give one a clear understanding of the insurmountable difficulties which confront bituminous coal operators under present laws. Because of limited time and my greater familiarity with the law and facts in the state of Illinois, I shall confine myself to Illinois references in discussing the local phases of the subject.

Let us set out briefly but clearly those provisions of the Federal act and the Illinois act which are pertinent to this discussion. These quotations follow the exact language of the two statutes respectively, except as to the omission of words and expression which are superfluous to this discussion. Both the Federal and State statute impose harsh penalties for violation of their provisions.

The Sherman act provides:

"S. 1. Every contract, combination * * * * or conspiracy in restraint of trade or commerce among the several states or with foreign nations, is hereby declared to be illegal" (and such contract, combination or conspiracy is declared to be a misdemeanor).

"S. 2. Every person who shall monopolize or attempt to monopolize or combine or conspire with any person to monopolize any part of the trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a misdemeanor * * * *."

As now construed by the Supreme Court of the United States, this statutory condemnation of monopoly and of restraint of trade is about the same as the common law condemnation, with statutory penalties added. Statutory law comprises all laws enacted by legislatures or by congress. The common law comprises the rules and principles, not incorporated into statutes, adopted and established by courts in their decisions upon questions not covered by statutes.

The system of law of the several states comprise the common law, but the federal system of law does not. The common law merely made void as between the parties thereto, contracts unreasonably restraining trade or tending to create monopoly. No punishment was provided or penalty imposed. The substance of the common law relating to monopolies and restraint of trade with penalties added therefore was enacted into the Federal law by the statute we call the Sherman act.

Stated more briefly the Sherman act prohibits—

(a) restraint of trade with other states or foreign nations, by means of contract or combination, and

(b) the monopoly of or attempt to monopolize any part of trade or commerce with another state or with a foreign nation, by any person or combination of persons.

These prohibitions regarding monopoly or the attempt to monopolize are about as definite as is practicable. In fact, monopoly will be rarely if ever literally absolute and it would be impractical to fix by statute, percentages or degrees which should be necessary to constitute unlawful monopoly. The conduct of the person or persons charged with the alleged offense and the results they accomplish must determine their guilt or innocence, in the usual course of the administration of justice. Cases which arise will be settled in the due course of affairs and uncertainty as to the future settlement of specific cases not yet arisen need not paralyze or discourage effective organization in different lines of business.

“Restraint of Trade” Indefinite.

But “restraint of trade” is a far less definite expression. It may be held to condemn many things not at all of the character or effect believed to be inevitable under practical monopoly, and because of which monopoly always has been feared and condemned. The Supreme Court of the United States has held that this prohibition must be construed “in the light of reason.” If this is intended to mean that only those acts in restraint of trade are to be condemned which are of the same character as the acts feared from monopoly and therefore injurious to the public as a whole, it is unfortunate that it has not yet been so stated by the courts of last resort. Indeed if that is what is intended it is difficult to understand why the Federal statute might not be safely amended to that effect.

The Illinois anti-trust act provides:

“If any * * * * individual * * * * shall * * * * become

**** a party to any **** understanding with any other **** individual, to regulate or fix the price **** of any commodity; or shall **** become **** a party to any pool, agreement, contract, combination or federation, to fix or limit the **** quantity of any **** commodity to be **** produced or mined **** in this state, such **** individual **** shall be **** guilty of conspiracy to defraud ****.”

Before the enactment of the anti-trust statute in Illinois, the general prohibition of monopoly and restraint of trade rested alone upon the common law of the state. But the common law left some things to reason in its application to alleged facts and it did not provide accompanying penalties as for criminal misconduct. Therefore the Illinois statute quoted was enacted in which the use of general terms like monopoly and restraint in trade is avoided and the practical things most feared in and most likely to result from a monopoly, namely, fixing prices and limiting output, are designated with admirable clearness and prohibited under harsh penalties.

Stated more briefly the Illinois anti-trust act prohibits:

(a) any form of understanding, between any two or more persons, to fix the price of any commodity.

(b) any form of agreement, between any two or more persons, to fix or limit the quantity of any commodity to be produced.

With this review of the law in mind turn now to a statement of facts relating to the coal mining industry in the state of Illinois. Almost three years ago I had the honor of addressing the American Mining Congress in the City of Pittsburgh, and in the course of my remarks described the conditions of the coal mining industry in Illinois. The demoralized and economically unhealthful conditions then described still exist and much of the language then used still fits the case.

There are about three hundred independent coal producing companies in the state, operating more than four hundred rail-shiping mines. A tremendously rapid expansion of mining capacity has been made possible by the extraordinary cheapness at which a body of coal lands could be purchased from owners usually retaining the surface and the ease with which transportation facilities are extended in a prairie state, and access given to large, but deceptively alluring because already overfilled markets. Public necessity seems to require that there shall be in existence at all times sufficient mining capacity to supply the requirements of the winter months. This inevitably means a large surplus capacity in the

spring and summer months. But all reason has been exceeded in that respect. The aggregate annual capacity of Illinois coal mines is so much in excess of the aggregate annual demand for Illinois coal that the average running time of all mines does not now exceed 180 days per year. The natural fluctuation in the demand for Illinois coal between summer and winter is such that the industry never can expect to work full time. While Illinois coal can be stocked a considerable length of time it cannot be mined many months in advance, and held for use in the winter like anthracite and more expensive eastern bituminous coals, because it contains a higher percentage of moisture and will crumble and slack sooner than the higher priced coals. Consumers of Illinois coal aggravate, rather than help to overcome, this condition by refusing to order coal as far as might be in advance of the actual need for it. It must be produced substantially as ordered from time to time, and this makes production or demand (and demand and production mean the same thing in this connection) much less during the months April to September inclusive than during the other months of the year. This condition is so uniform that the relative percentages of production during the busy season and the duller season have not varied materially in ten years except when temporarily affected by anticipation of a strike or other abnormal business conditions.

For several years the margin of capacity over and above summer requirements has been greater than is necessary to properly supply a normal busy season. For the reasons given it never could be hoped reasonably that the mines should average full running time excluding only Sundays and holidays. But after making all due allowances it is fair to say that the excessive producing capacity results in an average loss of sixty days per annum for all mines, compared with what might be properly expected with a reasonable adjustment of the number of mines attempting to run, to the number actually required to fully and promptly supply all demands.

Sixty Days Lost Annually by 70,000 Miners.

There are more than 70,000 miners and mine laborers at the mines in Illinois, working on the average sixty days per year less than they could work if there were a reasonable adjustment of producing capacity. This is equivalent to the absolute idleness for the entire year of 12,000 to 15,000 men. This is an enormous economic waste. Many miners are held in the industry working short time, with resultant low annual earnings, when their labor might be use-

fully applied in other industries where it is needed. Many less miners could produce all the coal required and enjoy much larger annual earnings.

The excessive number of mines kept open for operation causes a scarcity of miners, makes miners much harder to get, more difficult to deal with, and makes it necessary to accept the services of inferior miners, when, if fewer miners were required, operators could choose the better class, which the miners themselves desire shall be done.

The very low average number of days' operation causes coal to cost much more than it would if fewer mines were operated a greater number of days; and the natural endeavor of each individual company to secure a greater number of days' operation than the average depresses the selling price of coal to cost or less, in an effort to avoid an almost certain greater loss by voluntarily accepting a lesser one.

The intense economy forced upon the mine owners by these conditions is seriously affecting the proper conservation of the coal deposits.

The general population of the communities in which coal mines are located as a rule are suffering greatly in their business affairs. These conditions are suffered by every one dependent upon the industry, while the consumers of Illinois coal as a general rule are buying the coal at the cheapest prices in the world. The average price at the mines for bituminous coal used in Chicago and St. Louis is cheaper than in any other of the great cities of this country. The prices paid for Illinois coal by transportation companies and industries is less than half the price paid for coal for similar uses in Great Britain and on the continent of Europe. I am informed by coal operators in other states that similar conditions prevail with them.

Such conditions in a great industry are a public evil, not a public benefit even though they result in lower prices to consumers than would prevail under an intelligent organization of the industry.

It would be perfectly justifiable morally, to shut down the surplus mines during the spring and summer, provided enough mines were kept open to adequately supply the public requirements during that period. But in such a disorganized industry, selfishness prevails apparently without thought of or regard for the future. Human nature would act the same in any other industry, under like conditions. Immediate self preservation is the natural instinct; not present self sacrifice for the chance of possible future benefit.

It is not necessary to ask that competition shall be eliminated or even vitally impaired. But the attitude toward competition need not be that of fetish worship. It is a subject about which the public can safely exercise some sense of justice as between buyer and seller, and should do so in its own best interest. A seller in deciding whether to deal with any given buyer should have at least some reasonable equality of alternative advantage or disadvantage. But the producer of coal under the conditions I have described has no equality of choice. Practically he is under duress as compared with the buyer. If a coal mine stands idle, physical deterioration proceeds with great rapidity. In many cases large quantities of water must be pumped out constantly or the mine will be flooded and destroyed, while in others underground fires from spontaneous combustion must be guarded against constantly. A very heavy additional penalty is thus imposed upon the mine owner who might otherwise choose to let his mine remain idle instead of producing and selling coal at a direct loss. A merchant or a manufacturer is not put to the choice of selling at a loss or being put to ruinous expense to avoid having his store or factory flooded or burned, nor is the deterioration of an idle building or machinery comparable in any degree with that of an idle mine.

Buyer and Seller in Different Positions.

The buyer is in an entirely different position than the seller. Presumably any two buyers, or any number in fact, may legally combine to place their purchases with this or that seller at their pleasure. No doubt it is true that such a combination of buyers, by misrepresentation of facts or other acts of a fraudulent nature, might be held punishable for conspiracy to defraud. But in such case the legal offense would consist solely of the misrepresentation or the fraudulent acts. The mere combination to purchase jointly is not condemned either by common law or statute.

The theory upon which the condemnation of monopoly is based is that it creates a false relation of inequality between buyer and seller, gives the seller an unfair advantage and enables him to secure from the buyer an unfair price; a price greater than is necessary to yield a fair and reasonable profit, and greater than could be secured if the relations were fair and equal.

The theory upon which the condemnation of restraint of trade is based is that such restraint is injurious to the public. But, does the public consist solely of buyers and consumers?

Perhaps it is the idea of consumers and their champions, that producers are merely their workmen and servants. Even so, are

not the workmen and servants entitled to protect themselves against unfair advantages claimed by their employers or masters? Public opinion approves proper organization with proper methods on the part of laboring men solely for the reason that that right is necessary to enable them as sellers of labor, to protect themselves against unfair advantages on the part of organized capital, the buyers of labor.

Public Will Recognize Obligation.

It is my belief that when the public becomes correctly informed as to the destructive effects of the present idol worship of competition without regard to its fairness or unfairness; and the waste which might be lessened without injury to the interests of the public in other directions, public opinion will recognize not only the obligation to do justice, but the self injury in neglecting or refusing to treat this great problem with reference to the interests of all parties concerned. Doubtless there are those who will answer that if producers know no better than to waste their capital, efforts and time in mutually destructive competition, nevertheless the public generally profits rather than suffers by their conduct; and that it is no part of the public duty or interest to conserve the property and interests of people who lack sufficient judgment and self control to do so for themselves. I do not believe that such a position is economically sound, or creditable to the individual who assumes it, with reference to any kind of industry or public service. But in connection with the production of coal it is particularly unsound. Industries engaged in production or manufacturing based upon raw materials which are reproduced periodically stands on a different footing than those engaged in the production of coal. It is true that in the ordinary manufacturing industry, a large excess of producing capacity causes serious waste and loss, because of capital tied up and made unproductive, and the time lost by laboring men held in the industry and working only part time, and the waste of such labor and other expense as is required to maintain or preserve idle plants. These conditions of waste and loss exist in even a greater degree and are less reparable in coal mining than in ordinary industries; and there is also the irreparable waste of an exhaustible and irreplaceable natural resource, which is indispensable to the continued existence of modern industry and civilization. It has been the habit of cheerful and offhand optimists to assume that by the time coal is exhausted we shall have discovered means of developing power from the ocean tides, the sun rays and the winds, or by some miraculous manifestation of Providence yet

to be revealed. This fallacy has been disposed of by the recent report of a British Parliamentary Commission upon available sources of power to take the place of coal. The report of this Commission shows the vital necessity of the most thorough conservation, both in the use of coal and in mining it.

But, it may be asked, how can you prevent the excessive investment of capital in a given industry during or following a period of unusual prosperity in that industry and thereby prevent the waste consequent upon such overcapacity; and it must be answered that it cannot be entirely prevented. But it may be greatly modified by a reasonable regulation of production. To illustrate: A period of extreme depression like the present causes the permanent abandonment of old mines and a greater loss of aggregate capacity than is replaced by new mines, of which there are few if any opened. The history of the industry discloses that when prosperity returns demand for coal increases with far greater rapidity than producing capacity can be increased, because it requires from one to two or three years according to location and natural conditions, to open and develop a new mine. The rapidly growing demand soon overtakes the weakened capacity. Consumers bid prices up on themselves and the industry is quickly in a state of abnormal and excited prosperity. Inexperienced and deluded owners or borrowers of capital rush into the industry. The judgment and foresight of experienced men frequently is overborne by the lure and excitement. In a few years the increasing demand slows down and later even shrinks again. In the meantime the abnormal increase of capacity overtakes and passes demand and the periodical collapse and depression again sets in. It is a superficial comment and merely begs the question to say that this occurs in all industries and cannot be avoided without changing human nature. Moreover in the production of coal it occurs with much greater than the average intensity and as I have endeavored to point out, results in greater harm to the public welfare. The real question involved is whether an attempted cure may not aggravate the disorder or work harm to the public in other directions. It will be urged that artificial maintenance of prices against natural reaction from unnaturally high levels, will only delay the reaction temporarily and intensify it when it occurs. Again this is merely begging the question. The solution which should be sought for should be one which, by checking the unnatural severity of the depression, will to the same extent check the abnormal reaction following recovery. An intelligent regulation of attempted production during periods of depres-

sion and excess of capacity would tend to lessen the actual loss of producing power and by a greater readiness to meet and supply a rapidly increasing demand following recovery from depression, would in turn prevent an excessive increase of capacity. But such a policy cannot be carried out by co-operation among mine owners under present laws as now interpreted by the courts with any reasonable certainty of escaping prosecution, even though reasonably disinterested persons could see in the results effected no practical harm to the public interests in general, but on the contrary material incidental benefits. President Taft doubtless has taken a sound position in defying radicals and demagogues to give an illustration of a case where an actually guilty person or corporation could escape punishment under the federal law as now construed. But so far as I am aware he has omitted to assert with equal confidence and positiveness or at all that a person or corporation, perhaps guilty of technical violation of the law, but practically innocent of any public harm, could be equally certain of escaping punishment.

I do not think it can be reasonably expected that either state or Federal law shall be so framed as to state specifically what manner of contract, combination or conduct in every case shall constitute unlawful restraint of trade. Perhaps no more accurate statutory test can be devised than that the purpose or the necessary results shall be harmful to the public interest or shall give either buyer or seller an undue and unfair advantage. It will be found in applying such test or any other test it is practical to devise that it involves the determination of mixed questions of fact and law. Unless otherwise provided in the statute, such determination would be made in the courts in the usual manner. If the laws were amended to the effect just suggested but no further, there would still be many cases involving perfect good faith on the part of business men, but in which the parties could have the legality of their plan determined only by submitting to criminal prosecution, or by being put to the necessity of suing some purchaser who might refuse to pay under the forfeiture provisions of the laws, at the risk of confiscation of the entire amount involved. Such methods and conditions in the enforcement of law are not essential to the proper punishment of persons guilty of intentional and harmful restraint of trade and they will not continue to be acceptable to the majority of citizens very long. Indeed it is a fair question whether the majority of the people will not demand a different system at once when the real nature and effect of these things become a little clearer to them.

No unanswerable reason has been advanced why a modified form of the commission method as applied to the control of railroad rates and practices might not be applied to the control of contracts and combinations in restraint of or tending to restrain trade.

I will not attempt to go into details further than to say that this suggestion does not involve the idea that a commission should have power to fix or control prices of commodities. There are certain constitutional questions involved which would require careful consideration in framing a trade commission law, but they are not such as to prevent a vast improvement in the justice of the present rules and methods for determining the legality or criminality of plans conceived in good faith.

Could Submit Contracts to Courts.

It is true that the laws might be so drafted that the contracts or combinations could be submitted to the courts, before putting them into force. But this would result in differing rulings in the various districts or circuits of the same state or of the United States, on contracts of exactly the same form and purpose; and would vastly increase the number of appeals to the supreme courts. It is to avoid this confusion and multiplicity of litigation that the Interstate Commerce Commission and the state railroad commissions are given the sole initiative or original jurisdiction in all cases regarding railroad rates and practices. The same reason exists and probably in a greater degree for submitting trade contracts or combinations to a trade commission for each state or for the United States, rather than to the various district or circuit courts. Contracts or combinations affecting competition of trade should be punishable criminally only in case of their being put into practice before being submitted to the trade commission, or being persisted in after condemnation by the commission or the higher courts. Approval by the commission should give prima facie legality, and should protect the parties operating under them, unless and until the ruling of the commission should be reversed by the higher courts.

Even if public opinion is not yet ready to place all branches of trade and industry upon this basis, its greater self interest in the avoidance of avoidable waste of the coal reserves of the nation should justify the change with reference to the production of coal.

Under such form of law it should be possible to place the production of coal upon a higher plane of conservation of the coal itself, of the capital invested and the labor applied in mining, without injury in other forms to the interests of the public.

Anti-Trust Laws in Their Relation to the Mining Industry.

BY WALTER WILLIAMS,
BENTON, ILLINOIS.

In the preparation of the program, I received a communication from the secretary that I would be expected to discuss this general question of the Sherman anti-trust law as it applies to the coal mining industry in Illinois and the country. I understood I was to discuss this question tomorrow night, and it was by mere chance that I came in to the meeting this evening. I am not here with the expectation that I can add more than commendation to the excellent papers that have just been read. These papers have been written by men who know the ills that beset the industry. That is evident from the exhaustive manner in which they have treated the subject, from the clearness with which they have arrived at conclusions, from the far-sighted suggestions given as to the results that would follow a continuation of the present policy, and from some remedies suggested to alleviate our distress.

The conditions that have brought about our present state in the mining industry are merely the result of the old struggle between the vested rights of property and the rights of men. We are only reaping the whirlwind that has been sown. The tremendous opportunities for industrial development in this country following, as one of the speakers said, the Civil war; following the discovery of the wonderful natural resources of this country and the desire to develop it, placed in the hands of a few men, a few combinations of men, power such as has never been seen in the civilized world before. It has caused the creation of great corporations, such as the Standard Oil Company and the great railroad systems of this country, and they have abused the privileges that were theirs, as men and corporations without wise restraint are prone to do. They are not to be blamed too harshly. The law permitted it, and the people themselves are to blame because they made the law, or permitted it to be made, allowing the condition that confronts us today and which we cry out against.

This assault upon capital, this assault upon the railroads, this assault upon corporations, is the natural result of the excesses committed by the great combinations in this country. The Sherman anti-trust law was a blind effort on the part of the great masses who felt the repression, who felt the effort of these gigantic cor-

porations to get control of the transportation of the country, the necessities of life and the sources of supply; and, realizing that danger threatened and panic stricken by its imminence and unknown possibilities for working harm, the Sherman Anti-Trust law came as the result; it was a blow struck into the dark, a blind effort on their part to break down this approaching evil, and, naturally, such blind effort was not constructive in its nature—as one of the speakers said, it was repressive.

The Supreme Court of the United States, in my judgment, could construe the law in no other way. The function of the supreme court is not constructive, but interpretative. This law is on the statute books, and it is theirs to interpret, and for the executives of this country to enforce; and neither the supreme court nor the President are to blame. They could do nothing under the circumstances other than just what they have done. Mr. Taft and Mr. Wickersham are merely following out their plain duty, under the law as it is, when they say that these gigantic corporations must be dissolved.

Now, what must be done? They are doing their duty, but it is not going to relieve the repressive situation in this country. It is not going to relieve the fearful condition that the coal business of this country presents. The constructive part must be done by the legislatures of this country, and now that the Sherman anti-trust law has been interpreted, and now that effort is being made to enforce it, the people are becoming aroused to the futility of the enforcement of that law and the tremendous loss that is going to come if it is enforced. Combinations in this country are inevitable. All we need, or rather the thing we need, is not to do away with combinations, but to do away with the unreasonable oppression which combinations give an opportunity to put into effect. Combinations must be permitted, because only by combination of capital can business be economically handled. No one man, for instance, has the money to build up an institution like the Standard Oil Company, which has reduced a common household necessity from an exorbitant price to a price that brings it within reach of the humblest citizen. We must permit combination. It is the inevitable method of this age. The thing we ought to do is to permit the combinations and place such restrictions upon them that the former opportunity for exploitation, for plundering the public, can not exist.

The ordinary legislature in any state in this Union, and even the Congress of the United States, as it is organized today, and as its members are elected, can not handle this question as it should

be handled. It is futile to expect a Congress that is made up of a changing body of men, changing every two years, to investigate the industrial conditions of this country and construct laws that are going to meet the needs of this country. There are twenty-five congressional districts in the state of Illinois, and there is a different congressman sent from many of those districts every time there is an election, which is every two years. What does the ordinary congressman know about legislation his first term? What does he know about constructive statesmanship? What, if he does know it, can he accomplish in that time? I am inclined to believe that the suggestion of the first speaker will be the logical one. We must resort to some form of commission, a scientific commission, a commission that will be appointed or constituted to exist over a term of years, whose members shall go into these questions and study them thoroughly, study them from a scientific standpoint that shall be based upon knowledge as to what is right between all the parties interested.

Now, you men who are in the coal business are clamoring for an amendment to the anti-trust law that will permit you to combine, and there you stop. You must expect to not only be permitted to combine, but to be restrained from plundering the great body of the people by the use of a too strong combination or a too mercenary one. I am a coal operator myself and I see the necessity for combination; but, gentlemen, we must take with it the inevitable consequence that will follow—the having restrictions thrown around us so that we can not at certain seasons of the year, or at any time, exact an exorbitant tribute.

Why have we not acted? A large measure of blame was put on us as well as the government, by the last speaker, and one reason why we have not acted after we realized the condition, is because we are born gamblers. There is not a man in the coal business today, bad as the condition is, but hopes that the recurrence of that high tide of prosperity that occasionally comes to the industry will arrive before he is forced into bankruptcy and out of business. We are satisfied in the summer time to trade a dollar for ninety cents, in the hope that when September and the winter months come we may trade the dollar for \$1.75 or \$2.00. Our business will have to be put on a basis of reasonableness, which shall give a return on the investment that shall be both just and permanent. With the desire for combination must come also the recognition that there must be restriction of an unlimited profit. That has come to the railroads. The Interstate Commerce Commission has fixed certain maximum

prices that the railroads may charge for the service they render. It would not be a bad thing for the coal industry, and I offer it as a suggestion. Suppose we had a commission that would fix the maximum price that we might charge for our product, that price being fixed after an intelligent study of the business as it affects all the parties in interest—the operator, the workman, and the public, and fix it so that there would be a reasonable and even large profit, because the hazards of the coal business demand that the profits shall be more than come to the ordinary business. Then permit combinations whereby the maximum price that the commission fixes shall be the minimum price that the operators will charge to the public.

The commission idea is the one that is going to make itself felt in every line of endeavor. I am a democrat in politics, but I am heartily in favor of Mr. Taft's idea (though favoring Taft's ideas about *anything* may run counter to the political theory of many of those belonging to my party), and I can see a certain rightness in the attitude that he has assumed with regard to the revision of the tariff. We must get away from the idea that all of these things are to be fixed by politicians who have selfish interests to subserve. These laws must be constructive in their nature, and they can only be constructive in their nature after thorough investigation of the particular subject by a body of men who are both honest and efficient. The legislature of Illinois is as wholly incompetent to deal with this question, as it is at present constituted, as is a new born babe. Its shame is written broadcast all over the country, and how can you expect a body of men, such as they, to deal with a question that is fundamental in its nature, and that affects a great industry and the interests of enormous capital and a great body of workmen; over fifty thousand men working in the mines in the state of Illinois and millions of capital invested, and a great population dependent upon the industry for their fuel, and other great industries dependent upon it for the power to turn their wheels. To submit this question to a body of men so elected—this year in, next year out—and so likely to be both ignorant of the questions and unmindful of their duty, would be disastrous. It must be submitted to a body of men who can and will investigate it fully, and who will bring in a report that shall provide the basis for constructive legislation; a body of men who will have in mind the right of capital to a reasonable profit upon their investment and also the right of labor to a reasonable return for their industry, securing to them not only their daily bread, but an opportunity to lift their eyes from the ground occasionally and get a glimpse of a broader oppor-

tunity—an opportunity for education and some of the cultural things of life. We must face the changing condition of sentiment in this country, and that means fair play, not alone to any body of men who happen to have a large amount of capital, but it means fair play to the great body of the people; and that means that any legislation enacted must be fair to the operator, to the workman and to the public. We can not continue as we are. We must be allowed to combine. If we are not allowed to combine, the ruinous competition in which we are engaged will wipe those now engaged in the industry out of existence. The industry will not be wiped out, but new capital will come in and reorganize it upon a new basis. Let me say to you, that those who today oppose the enactment of any law permitting greater profit to the business, who oppose any change in the Sherman anti-trust law, are short sighted. Let me tell you they will pay high interest for every dollar's worth of coal that they are buying for ninety cents. For every dollar's worth that they buy for ninety cents, they will pay \$2, and why? Simply because the profits that have been lost must be made up. The banks must be repaid the money that has been borrowed. The red ink must be written off the ledger. And not only that—the tremendous waste in the industry, as it is today being run, must be paid for in the future. And we have no right, and those who are buying our coal today have no right, to plunder the resources of this country, to waste the heritage of those who shall follow, in a crazy desire to buy a thing for less than it is worth, a thing which is one of the greatest necessities of human life.

To the work then of constructive legislation that will permit a profit to those in the industry; that will permit combination; that will permit the conservation of the product in which we are dealing, and on the other hand that will conserve the rights of those who buy and those who labor. (Applause.)

What the West Needs in Coal Land Legislation.

BY DR. GEORGE OTIS SMITH,
DIRECTOR OF THE U. S. GEOLOGICAL SURVEY.

In any discussion of the needed revision of our public land laws, a due share of attention must be given to the statutes relating to the coal lands. While certain classes of lands in the Western States have largely passed into private ownership, the public's holding of coal lands is still large enough to deserve most serious consideration. West of the One Hundredth Meridian lies the Nation's greatest coal reserve, estimated at more than a million million tons of anthracite, bituminous and sub-bituminous coal, and title to from sixty to eighty-five per cent of this tonnage is in the United States. It is self-evident that this fuel reserve is the key to the present and future industrial development of the Rocky Mountain region. Utilization of the water power resources will be an important factor locally, and for several decades fuel oil may be expected to affect the industrial situation, but so far as we can now foresee coal must be regarded as the principal source of power. Its present importance is shown by the fact that the coal production of the Rocky Mountain States was 14.7 per cent greater in 1910 than in 1909, although for the whole United States the increase in coal output for the same period was less than 9 per cent. Utilization of these Western coal deposits that will meet both present and future demands is the end that must be served in whatever public policy is adopted. The West needs and has a right to demand full opportunity for legitimate, energetic business development, but that does not include the right to inflict an unearned speculative tax on the future consumer.

Full opportunity on the public coal lands can be defined both from the standpoint of the coal operator and from the point of view of the consuming public. In my opinion, the operator can justly ask two things: First, the right to occupy an acreage sufficiently large for economic operation during an average mine-life period, and second, freedom from too great investment risks. Economic operation we will understand to mean the installation of such equipment as will secure maximum recovery at low cost with proper safe-guarding of both life and property, while excessive investment risks refer to capital outlays out of proportion to expected profits of operation. Both of the factors are in reality of hardly less in-

terest to the public than to the operator for upon them depend in the last analysis much that determine prices and concerns general welfare. The public should also demand that no right to the public coal land shall be granted except for present use. Actual development must be made the first condition of occupancy of any part of what now remains in the public domain.

The present status of coal mining in the West is the resultant of two factors, land ownership and consumptive demand for coal. The large holdings of coal land legitimately acquired through railroad grants and those secured by coal companies through dummy entrymen, and by purchase of agricultural entries as well as those patented to the states as non-mineral lands, together constitute a coal land supply that has practically met the demand. The strict administration of the public domain during the past few years, however, has shut off all opportunity for wholesale accumulation of coal lands under cover of the homestead and other laws. Up to the present time the acquisition of the coal land in the public domain has been largely accomplished without resource to the coal land law, so that the question becomes opportune—is the present coal land law adequate to meet present and future needs?

This law relating to coal lands is less unsatisfactory than many of the mineral land laws now on the statute books. By its provision for the valuation of coal lands at an adequate price the law makes possible a selling price that may promote development and at the same time prevent monopolization. As is pointed out in a public statement by Secretary Fisher, the present governmental policy of basing the valuation of public coal lands upon the tonnage and quality of coal which underlies the tract results in prices that are neither unreasonable nor exorbitant; the purchaser instead of paying a flat rate per acre in reality pays for the coal by the ton at values graded according to the quality and the character of the coal. Consideration is also given to every known physical and commercial factor affecting the value of the coal of the particular locality. The purpose has been to protect the present interests of the West by making the selling price of coal land approach but in no case exceed the present purchase value of a royalty under a leasehold, such as the states of Colorado and Wyoming or land companies in the West grant to the lessee, and at the same time to protect the future interests of the people by having these prices such as to discourage long-time speculative holdings. We must always keep in mind the fact that large speculative holdings are sure to affect the future price of coal in two ways—through the possi-

bility of monopoly and through the certainty of accumulated interest charges on the cost of the idle land.

The test of any policy is in the results it produces. That the prices put upon the public coal lands are not prohibitive can be shown by the record of sales. In the four years following the adoption of the policy of classifying and valuing the coal lands, the sales have increased $12\frac{1}{2}$ per cent in acreage and 36 per cent in value as compared with the four years preceding, and this in spite of the fact that the four years since July 1st, 1907, have included a period of industrial depression and slow recovery as contrasted with the preceding period of boom conditions. So far, therefore, as its provision for pricing is concerned, the present law appears to be as satisfactory as a sale law can be.

One serious defect exists in the present law which all must admit demands an immediate remedy. The restriction of legal purchases to a maximum of one hundred and sixty acres for an individual or six hundred and forty acres for an association is absurdly out of accord with good mining practice. The fixed charges of a modern coal mine equipped so as to safeguard life and property and to secure maximum recovery are too high to be assessed against the tonnage of so limited a tract, especially where the coal seam is of moderate thickness. Furthermore, unless provision is made for commercial operation on the remaining lands too great an advantage is secured to the land grant railroads and the large coal companies already in possession of considerable areas of high-grade coal. There is no public need of having either individuals or large corporations acquire large acreages of these lands for long time holding without development. Nor is there any sound economic reason for the disposition of the coal lands in small tracts. The homestead law expresses the spirit of American institutions in that it has encouraged every citizen to own a home but there is neither sentiment nor sense in a proposition to sell at a low price one hundred and sixty acres of coal land to an individual—every citizen does not need to own a coal mine.

In the endeavor to discourage long time speculative investment in the coal lands and at the same time permit present development, the fixing of selling prices has involved difficulties. It has been recognized that an ideal adjustment of values is well nigh unattainable for many if not for most coal lands. These difficulties suggest the wisdom of considering the other method of disposition, namely a leasing system. As Secretary Fisher has stated, "It may well be that a liberal but wisely protected leasing law would be

found to promote development more vigorously than any system of outright purchase." Thus, under a leasehold law any uncertainties as to quantity of coal or as to costs of operation would not need to be so critically estimated in advance. There would be no necessity of discounting every possible future condition, but periodic adjustment of rate of royalty could insure all equities of both operator and public, and I should expect that such adjustments might as often be downward as upward.

Under a leasing system, too, it would be comparatively easy so to adjust the relationship between ground rental and royalty, as to prevent the acquisition of coal deposits until actual operation became profitable. The greatest advantage of the lease system to the operator directly, and to the public indirectly, is relief from the large capital outlay now required in the acquisition of the large acreage absolutely necessary for a modern mine. This argument advanced against the present policy of valuing the public coal lands at even conservative prices thus becomes an argument for a leasehold law.

The objections to a leasing system are of two classes; those based upon political theory and those based upon economic considerations. Under political objections, I will place the arguments so often put forward against Federal landlordism, namely that the Eastern coal lands were disposed of in fee and that the West deserves the same treatment; and, further, that the natural resources of the West should not be made a source of profit to relieve the Eastern taxpayer. Such arguments can be easily answered. Past mistakes are poor precedents for future blunders. The citizen who argues for the continuance of the liberal, wide-open public land policy of the past is apt to be one who wishes a middleman's profit on a small investment, and we know that East or West, the owner of coal lands acquired as agricultural lands, or in any other way, at a low price, makes his large and unearned profit out of the coal operator, and through him, out of the public. Too large a percentage of the coal output of this country is now mined under lease, to justify this objection to allowing the people themselves to lease direct. As regards the argument of reserving Western resources for the West, too few people in the public land states realize that under the present system of sale, the proceeds from the coal lands go directly into Western development through the Reclamation Fund, and cannot be used to relieve the Eastern taxpayers except as the whole country benefits by the agricultural development of these public land states. It is reasonable to expect that any leasing

law would make similar provision for the local use of revenues resulting from leases and indeed several of the bills already introduced in Congress have specifically recognized the wisdom of such disposition.

Much more worthy of consideration are the objections to the lease system based upon the fear that the cost of coal to the consumer would be increased. I regard this result as altogether improbable. The royalty paid into the United States treasury can be no greater a tax upon the consumer than the royalty paid to the State of Colorado, or to the railroad land company, or to the farmer. The average price of bituminous coal at the mine, in the United States, last year was \$1.12, which usually includes either a royalty or an equivalent interest charge, either of which would probably be greater than any Government royalty. This amount forms so small a part of the price to the consumer that the royalty under a Federal lease could be of but little concern to the public, if, indeed, it resulted in any increase in the first cost of the coal.

However, if we consider the lease as contrasted with sale outright to the coal operator, the reduction in capital necessary for original investment and the elimination of many of the risks in such investment must result in reducing cost of operation to the mine owner, and thus make possible a correspondingly lower price of coal to the consumer.

The other objection to the lease system is that based upon fears of expensive Federal management, and of inefficient administration or even mal-administration. These are possibilities which we must squarely face; but my faith in the efficiency of public administration is increasing to such a degree that this argument against the leasing is rapidly losing its force with me. If we look beyond our own Rockies, and out across the Pacific, we discover that a Governmental leasing system for coal lands is not a theory but an actual working fact. The Anglo-Saxon peoples of the Australasian States have found the leasing system not only practicable, but indeed preferable to the sale of coal lands. In New Zealand, where for thirty years the laws have permitted to the operator a choice of either sale or lease of public mineral lands, a conclusive argument for the leasing system is given in the latest statistics of mineral production, which show that approximately 90 per cent of the total mineral product of that country was mined under leasehold. If our trans-Pacific neighbors can administer a lease law so satisfactorily and if the mine operators in New Zealand prefer operation under

leasehold, will a similar system be fraught with either danger or failure in the United States?

We must face the fact that Uncle Sam is a landlord on a large scale—a coal baron, if you please; and that the question before us is how these millions of acres of coal land are to be disposed of so as to serve the just needs of the operator who offers his capital, technical skill, and business experience, asking in return a fair profit, and at the same time to protect the public interests.

All that the West needs is first, opportunity for the coal industry to develop as fast as the market justifies expansion, and with the least possible risks; and second, opportunity for the public to secure its coal at prices based on a minimum cost of production and without any addition of unearned and undue tribute to private landlords who desire to speculate on the future needs of the consumer. These ends, I believe, can be best attained by legislation inaugurating a Federal leasing system for coal lands of the public domain.

The Future of Alaska Coal.¹

BY ALFRED H. BROOKS,
CHIEF OF THE ALASKAN DIVISION OF THE U. S. GEOLOGICAL SURVEY.

I fully appreciate the honor of being invited to address the American Mining Congress on a matter of such importance as the future of Alaska coal. An adequate treatment of this subject would require not only a far more exhaustive study of the coal resources of the territory than has yet been made, but also of the industrial conditions of the Pacific margin of the North American continent, where a market for this coal must be found. Furthermore, it necessitates a look into the future—a consideration of probable increase of population, of commerce, and of industry. This problem also involves a careful consideration of other possible sources of fuel or power which now or in the future may come into competition with Alaska coal.

The brief time devoted to the preparation of this address, if there were no other reason, has prevented the exhaustive study of the elements entering into the problem. On the present occasion I can do little more than to summarize the data which have been published elsewhere.²

What is the future of Alaska coal? The answer is simple enough—it will be burned. Like all simple replies, it does not strike at the root of the problem. The fundamental question is: Where and when will it be burned? To answer this larger question demands a consideration of the distribution, quality and availability of the coal and its present and future market.

The Coal Fields.

A measure of the relative importance of the Alaska coal fields may be obtained by comparing the quantity of fuel they contain with that of better known areas. Unfortunately, the data on Alaska coal tonnage is very incomplete, as only one-tenth of the areas mapped as underlain by coal-bearing formations has been surveyed in sufficient detail to admit of tonnage estimates. The estimates, made in 1909, show a total coal tonnage, including

¹Published by permission of the Director of the U. S. Geological Survey.

²Much of this address is abstracted from or based upon two papers already published; namely:

"Alaska coal and its utilization;" Bull. U. S. Geol. Survey No. 442, 1910.

"Geography in the development of the Alaska coal deposits;" Proc. Assn. American Geographers for year 1911, Vol. I, 1911.

lignites as well as high-grade fuels, of 15,000,000 tons.¹ As only one-tenth of the known coal fields has been surveyed and as at least one-fifth of the territory is geologically unknown, it is probably safe to conclude that the total tonnage is ten times this estimate.² This estimate of 150,000,000 tons is intended to show simply what the ultimate coal tonnage may be and has no bearing on the present coal situation, for much the larger part of this coal is not available now and will not be for many generations to come. This total estimated amount of Alaska coal is about 4½ per cent of the total estimated tonnage of the United States and its possessions and a little less than 15 per cent of the coal in the lands still in government ownership. It is about a third more than the original coal supply of the state of Pennsylvania. The coals of Pennsylvania are, however, of a high grade, while much the larger part of Alaska coal is lignitic.

In view of the fact that Alaska is almost continental in its dimensions, and that the coal fields are very widely distributed within the territory, these comparisons are in some respects misleading. It becomes necessary to qualify any statement in regard to total quantity by considering what fields are so situated as to be available for present use as well as what part of them include coals of sufficiently high grade to warrant export. For this purpose the Alaskan coal fields can be conveniently divided into three economic provinces, based on geography. The first is the Pacific slope, which comprises the mountainous area drained to the Pacific ocean. Here there are large quantities of lignitic, with some sub-bituminous coals, which are on or close to tidewater. Also fields of high-grade coals which can be reached from open ports on the Pacific by railways from 25 to 200 miles in length. From the coastal terminals of these railways to Puget Sound ports the distance is about 1,200 to 1,400 statute miles, and about 2,000 miles to San Francisco. This province is readily accessible and its resources can therefore be considered an asset of the present generation. It contains about 40 per cent of the known coal resources of Alaska, besides valuable deposits of metals and considerable areas of arable land, all of which can be opened up by railways. Some of these coals, as has been shown, are of a high grade and located favorably for export.

The central region includes the area lying north of the coastal

¹Brooks, Alfred H., Alaska coal and its utilization: Bull. U. S. Geol. Survey No. 442, pp. 53-55, 1910.

²Since this estimate was made the survey of one field showed an additional amount of lignitic coal amounting to 9,000,000 tons.

mountain barrier and is drained to Bering sea by the Yukon and Kuskokwim rivers. It includes about 35 per cent of the known coal besides important gold deposits and considerable arable land. To reach this region by railway from open ports on the Pacific will require 400 to 600 miles of railway. The coals are of a lignitic character and under no conditions which can now be foreseen could they be mined for export. The coals of these fields, therefore, have value only for local use—a value which is enhanced by the presence of other mineral resources, by arable lands, and by the relative scarcity of other fuel.

The third province comprises northern Alaska, draining into the Arctic ocean. This includes about 25 per cent of the known coal, with considerable of a high grade. This part of Alaska is almost entirely isolated, as it is too far from open ports on the Pacific to permit of railway connection, and its rivers are locked in ice for all but two months in the year. Most of this field is unexplored, and the stated estimate of tonnage is probably far below the actual tonnage. There is good reason to believe that its coal supply may exceed all that of the rest of Alaska, but whatever it may be, the coal has no value unless as an asset to future generations.

It appears, therefore, (1) that the Pacific slope coal is the most valuable of the Alaska coal supply to the present generation, for it can be exported; (2) that the coal of the central province has value only as local population and industries develop, and (3) that the coal of the Arctic slope will not be drawn upon until that future time when the more accessible coals of the world approach exhaustion.

A discussion of the development of Alaska coal fields will, therefore, be concerned chiefly with those of the Pacific slope. These coals are the only ones in the territory available for the growing population of the western side of the North American continent and are, therefore, of national as well as local importance. The estimates indicate that the Pacific coast province includes about 6,000,000 tons, of which nearly one-half is lignite. It is probably safe to multiply the estimates of lignite by ten. Less definite evidence is available regarding possible additional tonnage of bituminous and better-grade coals. It is known, however, that coal occurs in regions adjacent to both the Bering River and Matanuska fields, and it is reasonably certain that these fields will be found to be much larger than at present supposed.

Much of the coal of the Pacific slope fields can be made avail-

able by the construction of comparatively short railways. They include considerable high-grade steaming and coking coal, as well as a much larger quantity of lignite. Of the geologic occurrence, it need only be said that the lignites occur in rocks which are little disturbed, while the high-grade coals are highly folded and faulted, but not so much so but what some of the beds at least admit of profitable exploitation.

Quality of Coal.

As is now generally known, the chemical quality of the coal of the Bering river and Matanuska fields leaves little to be desired. These fields include high-grade steaming and coking coals comparable to the best coals of the east, and also some anthracite. The physical character of many of the coal beds is much less favorable, for they have been crushed to such an extent that they will furnish a large percentage of slack, which does not detract from the value of the coking coal. In both the Bering river and Matanuska fields, as shown by the studies of Dr. Martin,¹ the coal beds have been much deformed, thus greatly enhancing the cost of mining and in case of some of the beds prohibiting altogether the economic recovery of the coal. This, as Dr. Martin's survey has shown, is notably true of the western margin of the Bering river field, where there is much faulting, and of the northeastern and anthracitic part of the field, where close folding and faulting have in many instances so crushed the beds as to probably make them worthless for mining.

The character of the Matanuska coals is less well known, as but few openings have been made on the beds. Locally these appear to be somewhat less disturbed than the coals of Bering river field, but this may be offset in cost of mining by the fact that a large number of intrusives are present. While there are differences of opinion as to the percentage of coal from these two fields that can be commercially mined under present conditions, the fact remains that they include much workable coal of a higher grade than any in that part of the North American continent tributary to the Pacific ocean.

Transportation.

Transportation is not so serious an element in the development of the lignitic coals as in the high-grade coals, for the former

¹Martin, George C., *Geology and mineral resources of the Controller Bay region*: Bull. U. S. Geol. Survey No. 335, 1906.

Martin, George C., *Preliminary report on a detailed survey of part of the Matanuska coal fields*: Bull. U. S. Geol. Survey No. 480, 1911. The complete report on this field is in print.

will probably only be mined for local use. In some instances this is not true. For example, a railway some 50 to 60 miles in length will have to be constructed to the Nenana field of the Tanana valley if the coals there are to be carried to market.¹ None of the high-grade coals can, however, be made available without the investment of many millions of dollars in railways and terminal facilities.

The Bering river field lies about 25 miles from the nearest tidewater at Controller bay and 54 or 90 miles, depending on the route chosen, from tidewater at Cordova on Orca bay. The 54-mile route involves the crossing of a pass about 350 feet in height, while the 90-mile route is practically on a water grade. Thirty miles of the Copper River railway, already constructed, is available for either of these routes. A railway from the coal field to Controller bay would have a water grade. Controller bay—now but an indifferent harbor—can be made available as a shipping port by a sufficient expenditure of money. Orca bay, on the other hand, is a good harbor, but involves a much longer haul. The Matanuska field is 60 miles from a summer port on Knik Arm, and 180 miles from Seward on Resurrection bay—an excellent harbor open to navigation throughout the year. Seventy-one miles of this railway (the Alaska Northern) is completed and crosses two passes, 700 and 1,000 feet in height.

It will be shown that the heavy investment for railways necessary to open these fields hardly seems justified with the present visible market for Alaska coal. A part of the mileage from Cordova to the Bering river field will be utilized for the traffic from the Copper river region to the coast. The railway from Seward to the Matanuska field will pass through or close to promising auriferous districts, and if extended, as planned, to the Tanana valley, would serve as a trunk line connecting tidewater with the Yukon basin.

Competing Fuels.

The market for Alaska coal will evidently depend in large measure on the mineral fuels or other sources of power with which it comes in competition. Here again the low-grade bituminous coals and lignites need not be considered, for they will only be utilized under non-competitive conditions. On the other hand, the high-grade coals must meet competition in open market.

There are many undeveloped water powers in the Pacific states

¹It has been suggested that the energy of these coals be utilized for the Fairbanks and other gold-bearing districts by transmitting it in the form of electricity.

and Alaska, and these could be made to furnish energy which might compete with any obtained from Alaska coal. Eventually, however, recourse will be had to the mineral fuels, as the water powers are not sufficient to meet the demands of future industries. Therefore the competing mineral fuels are probably the most important element in the problem of markets for the Alaska coal.

The western slope of the North American continent is, on the whole, but poorly supplied with coal, and most of it is not of a high grade. Some fairly good bituminous coals occur in Washington, but not in large quantities. The other Pacific states are even less well provided with coal. In British Columbia the situation is far better, and for many years the west coast industries have drawn heavily on the coal fields of Vancouver Island. The recent discovery of high-grade coal, said to be in large quantity in the head-water region of the Skeena river, may afford another source of fuel for the Pacific province. This field is said to lie about 130 miles from the coast.

Turning now to the coal supply of other lands bordering the Pacific. The South American countries have insufficient coal for their own use and are drawing heavily on England. Australia is well supplied with coal, though most of it is not of high grade. Her mines are furnishing coal to South America and even to California. China's coal fields, though of enormous extent, are for the most part unavailable because of the lack of railways. When her teeming population turns to industries requiring fuel, the coal is likely to be needed at home. It is a significant fact, however, that a shipment of Chinese coal has recently been received at San Francisco. Japan, though an exporter of coal, which is not, however, of high grade, has none to spare, as her reserves are small.

It is evident, therefore, that the lands which, from the standpoint of commerce, are tied together by the Pacific, do not promise to become serious competitors with the Alaska coal. The opening of the Panama canal will change the situation. Then the eastern coals—by water transportation only about 6,000 statute miles to California, with an assured return cargo—can probably compete with the Alaska coal. This great engineering feat will change the boundaries of economic and geographic provinces. In considering the broad problem, however, it would appear unwise to ship coals from near the centers of population to the west coast, especially at the expense of fuel used in transportation, and any such movement can hardly persist under the operation of economic laws.

Had the Alaska coals been developed ten years ago, when they first attracted notice, they would have found a ready market, for at that time there was a shortage of fuel along the Pacific seaboard. Since that time, however, the industrial situation has been entirely changed by the enormous increase in the output of the California oil fields. In 1901 the California oil production was 8,786,330 barrels, while in 1910 it was 73,010,560 barrels. Mr. Parker¹ estimates that, of this quantity, some 40,000,000 to 50,000,000 barrels was used as fuel oil, representing an equivalent in heating value of about 11,000,000 to 12,000,000 tons of coal. The total coal consumption in the Pacific coast states and territories is estimated to have been 4,312,641 tons in 1901 and 4,812,398 in 1911. Therefore, in spite of the enormous growth of population and industries during this decade, because of the increased use of fuel oil the increase in coal consumption has been only 13 per cent.

Practically all the west coast railways are today either using oil or preparing to do so. In Alaska oil is rapidly being substituted for coal on the railways, steamers, and in the mining plants. With the putting on the market of a constantly increasing quantity of fuel oil, the outlook for the coal-mining industry is not very hopeful. It is therefore fuel oil and not coal in which Alaska coal will find its strongest competitor.

Present Market.

On the basis of the mineral fuel consumption of 1908² I estimated that the Alaska high-grade coal should find a market for 500,000 to 1,000,000 tons of coal. Since then the oil production has increased at such bounds that it seems probable that 500,000 would now be a safer estimate. The present annual consumption in Alaska is only about 100,000 tons, of which about one-fifth is in regions where the local coal might not be able to compete with that from outside sources. Unfortunately, as already shown, with the increased use of oil, even this market is rapidly dwindling. The visible market includes the coal needed by the navy, now about 150,000 tons annually, which will probably increase when the Panama canal is completed, the coal used for coke and for blacksmithing, and a small consumption of anthracite. The consumption of coke along the Pacific seaboard is 100,000 to 200,000 tons annually. It is therefore probably safe to count on a market for 500,000 tons of Alaska's high-grade coal, with the probability

¹Parker, E. W., *The Production of coal in 1910*: Adv. chapter from Min. Res. of United States, calendar year, 1910, p. 88.

²Alaska coal and its utilization: Bull. U. S. Geol. Survey No. 418, 1910.

that when this is produced local industries will be developed so as to increase the demand.

The question naturally arises why, if the actual demand for Alaska coal is so small, there should be such a clamor among the residents of the territory for the opening of the fields. In reply to this it should be noted that up to the present time only the larger consumers of fuel in Alaska have or are preparing to use California oils. These include the two longest railroads, the largest mines, and many of the steamers. The small consumer is still using a far inferior grade of coal to that found at his own door at a cost of \$8 to \$20 a ton. This high cost of fuel has seriously retarded many small mining enterprises.

A more important reason, in the opinion of the average Alaskan, for the opening of the coal field is that he believes such action will result in the completion of railroads begun or projected. He believes that the coal fields will furnish a part of the tonnage which will justify railway construction. However this may be, Alaska's greatest need today is railways. Without these, only the richest gold deposits can be mined, and there is little to attract a permanent population.

Future.

I have spoken only of the immediate future of the Alaska coal. It is certain that, unless we look a long distance ahead, the probability of an extensive mining industry is not very great. However, with the rapidly increasing population along the Pacific seaboard, the demand for high-grade coals is certain to increase. We can look forward with confidence to the establishment of an iron smelting industry on the west coast of the continent which will supply the local needs. This will make a demand for coking coal, and Alaska is the only source of supply. We also know that eventually California's oil production must decrease, and when that time comes Alaska coal will be needed to supply the demand for mineral fuel along the Pacific seaboard.

Centers of commerce and industry have been moving westward almost since the beginning of the Christian era. As the Atlantic superseded the Pacific as the great highway of nations, so now the Pacific, in turn, bids fair before long to rival the Atlantic. Concomitant with this will be the establishment of industries along the coast line. Therefore, while we may not expect a rapid development of a coal-mining industry in Alaska, yet of its future importance there can be no question.

The Alaskan Question.

BY GEORGE E. BALDWIN,
VALDEZ, ALASKA.

I wish at the beginning of my remarks to extend to the American Mining Congress, in behalf of the people of Alaska, our profound and sincere thanks.

It seems that of late years scarcely any sort of a national meeting could be held, no matter for what purpose convened, or by whom constituted, without passing some sort of resolutions for our benefit, and considering the Niagara of misinformation and the deluge of lies about Alaska with which the country has been flooded by the muckraking writers for a certain class of publications, it is not surprising that certain ignorant, but well-meaning people, should make mistakes.

As the residents of Alaska depend almost entirely for a livelihood upon mining and its subsidiary industries, it is a reasonable presumption that the members of the American Mining Congress should best appreciate the difficulties under which we labor, and be most competent to suggest remedies. The resolutions concerning our territory passed at your last meeting reminded us that one great organization at least was our friend.

What are the needs of Alaska? Considering the fact that a country of great natural and undeveloped resources has remained stationary in population for ten years, if not actually decreasing, its trade and commerce the same, the question is certainly one to demand thoughtful study.

The Secretary of the Interior recently visited Alaska and was presented with a memorial by the citizens of Valdez in part as follows:

Primarily Alaska demands and needs the same right of untrammelled development that has been accorded to every other territory of the United States pioneered by Americans. Alaskans ask that American citizens and all other industrious men be permitted to create property for themselves out of the limitless resources of this vast territory unhampered by bureaucratic dictation and interference. The people of Alaska are a unit in opposition to federal landlordism over its mines, forests and water power.

The doctrine that the Federal government five thousand miles away knows better what is good for Alaska than the pioneers who have spent years within its boundaries is a political heresy that cannot long stand before the enlightened sense of justice which characterizes the American people. If left to herself Alaska would enact laws for her government and development with the same intelligence and regard for

natural right that was shown by the early immigrants into the Pacific and mountain states, of whom Justice Field said in a judicial opinion:

"Wherever they went they carried with them that love of order and system and of fair dealing which are the prominent characteristics of our people."

And the senator who introduced the first mining law into Congress in 1866, which was merely a federal recognition of miner's law, said that the miner had given the honest toil of his life to discover wealth, which when found was protected by no higher law than that enacted by himself, under the implied sanction of a just and generous government.

This just and generous government has been succeeded by one that seeks to create a distant landlordism over Alaska. This policy, if continued, will forever stunt the development of the territory. Men born under republican institutions will not long remain where they have to get permission of a government agent to transact business. The garroting of Alaska by the last two national administrations has stopped its growth, decreased its population and financially ruined many men who had not anticipated that the great national government would make Alaska the dumping ground of eastern political fads.

And upon that subject I wish to add that in my opinion a form of local self-government at least as liberal as has ever been accorded the pioneers of any territory is absolutely necessary to our proper and orderly development. We will be satisfied with no make-shift, no half way measure; it is our right as Americans, and it is rights we demand, and not permits and privileges that we sue for. So much for the political side of Alaska's needs.

Alaska Has Paid Debt to Nation.

It has been urged by certain people utterly unacquainted with the risks and hardships of pioneering, and who have never wandered far from their own firesides, that Alaska was bought and paid for out of the taxes paid by the American people and they are entitled to get something out of it. Our answer is that they have gotten something out of it and are getting something out of it. The nearly two hundred million of Alaska gold which has been poured into the channels of trade of this nation, stimulating industry in all its branches, has more than paid any debt Alaska owes the Nation. During the panic of 1907 our bankers were begging the money power of Europe for a loan of twenty million in gold.

Alaska that year produced nearly that amount of the yellow metal, all of which went to the United States, not loaned, but to purchase commodities from almost every state in the Union, for up there we must import almost everything, except the air we breathe and the water we drink—and I suppose if the ultra-conservationists had their way we would pay a direct royalty on these.

Any attempt to impose upon the people and resources of Alaska any burden not borne by the people and resources of the

balance of the country will fail; first, because it is unjust; second, because it is economically wrong.

It seems to me in my boyhood days I read a story of fools who killed a goose that was laying golden eggs.

The mining laws of the United States, as they stand today, have stood the test of nearly forty years. These laws have been interpreted by the courts at an expense to the miners of millions of dollars. All important points have been settled and to enact a new set of laws at this late date, with all this to be gone over at the expense of the mining industry of Alaska, which is practically all on the public lands, would impose on that industry a burden it could not well bear.

Again, we demand with reason, we think, the same laws as apply to the remainder of our country. One might think to hear some people talk that the present residents of Alaska had established a close corporation and were trying to keep out the remainder of the people from participating in the possible profits of its development, while as a matter of fact we are crying for miners, investors, prospectors and industrious thrifty men generally, to come and take up their residence with us.

The town I live in is located in a forest reserve. Last summer I was doing a little building and purchased lumber from Puget Sound, fourteen hundred miles away, which, quality considered, was cheaper than could be produced by the local mills after they had paid the royalties and complied with the regulations of the forest service. If our gold mines are to be put on a leasing basis and managed the same as our forests I have no doubt we shall be able to extract gold from sea water cheaper than from the rocks and gravels of Alaska.

The problem of conservation has become so confused with the problems of Alaska that a few words upon this subject may not be amiss. A short magazine article published recently upon political subjects contained the word "conservation" no less than twenty-six times.

Now what is conservation?

How Some Alaskans Regard Conservation.

From our standpoint conservation to date is an attempt to gather all the public lands of our territory as an estate, its forests, its mines, its water power, its wharf sites, to be managed by a vast horde, a devastating host of government underlings and worked by our citizens as tenants, licensees and lessees; these underlings to be ruled by a retinue of officials stationed at Washington, thousands

of miles away. All of these locusts of officialdom to consider themselves the people's masters and not their servants. Why this retinue stationed at Washington? So they can be in closer touch with questions to be decided? No, so they can be promptly on the ground to lobby for more appropriations to hire more officials to lobby for more appropriations, ad infinitum. And they will need these appropriations, for such a system has never in past history paid its way and never will.

For generations we have been decrying the heartless greed of Irish landlords, yet here is a system of landlordism that out-Irishes the most Irish landlord that ever disgraced the human race by his rapacity. A landlord who refuses to develop his property, refuses to let anyone else develop it except under the most onerous conditions and refuses to pay one cent of taxes to be expended by local officials for local needs. The manifest injustice of all this needs no comment.

The idea that an owner will not more efficiently conserve resources than a government official is too silly to merit discussion.

I, in common with all other Alaskans, have nothing but words of commendation for that great body of scientific men who have represented the various branches of the Government service in Alaska.

There is another way to look at conservation:

It is a foolish attempt on the part of this generation to do the thinking for generations yet to be. What can be more ridiculous? You have probably heard the story told by Congressman Humphrey of Washington of the old woman who went into hysterics after she had concluded that some epidemic was going to kill all the geese in the world, that the people would forget how to write because there would be no quills to make pens with. It is to be presumed that had conservation been a fad in those days, all the remaining public land would have been promptly declared a goose reserve.

Less than a century ago, well-meaning men were making doleful prophecies about the impending extinction of the sperm whale, and on that account the world would soon be in darkness from sundown until sun-up. What a pity some power strong enough did not then declare the seven seas a whale reserve.

The idea of thinking for future generations has been tried. About one hundred years ago, naval reserves of live-oak timber in the southern states were created to provide the material to build the battleships of the future. After these acres had been held for generations in unproductive idleness they were recently restored to

the use of man and if an individual went to the Navy Department tomorrow to sell live-oak for building battleships, he would be considered a candidate for the lunatic asylum.

The doctrine of radical conservation, as applied to coal, is an absolutely hopeless one, for no matter how little or how much is used each year, it will finally all be gone.

Right Minded Citizen Abhors Waste.

Every right minded civilized man abhors waste, particularly of something that can never be replaced; but the doctrine that this is the last generation of inventors and scientists that will live and that the many forces of nature now going to waste compared to which all the coal in the world is as tallow dip to a thousand arc lights, that these sources of power will never be harnessed by man, and that the present generation must be starved as we Alaskans are being starved, well—words fail me when I attempt to express my opinion of such criminal foolishness.

These lamenting Jeremiahs who moan over the exhaustion of our natural resources pay all their attention to that section of the country where the population is sparse, while the resources in the section of the country where the population is dense are being used as circumstances demand without any of their valuable advice and assistance.

One of the problems of our nation is to restrict the people of our country from congregating in the centers of population; yet these radical conservationists demand the continuance of and extension of, a system that is depopulating our territory, in which at present there is only one human being, man, woman, child, Siwash squaw and pappoose for every seven thousand, seven hundred acres.

Alaska is being literally reserved to death. We have forest reserves, military reserves one of them one hundred miles in diameter, coal reserves, fish reserves, naval reserves, missionary reserves, church reserves, school reserves, seal reserves, bird reserves and I suppose by this time, bug reserves and cranks crying for more reserves.

Soon there will be nothing for us sour-dough Alaskans to do but act as cooks and packers for me lud, the Eastern faddist, who comes out to see what has been reserved at his behest, and then we will be disappointed, for not one out of a hundred of these fanatics will ever leave the deck of the steamer. In this connection I wish to state that the self-styled leader of the conservation movement has recently visited Alaska. This great musher, this great trail

blazer—who has penetrated the impenetrable fastnesses of the mountains, who has communed with Nature, knows the trees because when all the world but he and they were asleep, he purloined their bark lark secrets. This marvel of fortitude after traveling 4,000 miles on Pullman cars and palatial steamships got within 15 miles of the Matanuska coal fields, about which he and his paid assassins of character have been ranting, on a trail that has been traveled for years by men, women, children and cripples—still it was too tough for him. He turned around and came back and spent a large part of his time in Alaska around hotel lobbies trying to justify his actions before a hostile and outraged people. If the pioneers of Alaska had been made of no sterner stuff than he, the Matanuska coal fields would never have been discovered. Less than two hundredths of one per cent of the land of Alaska is in private ownership, more than ninety-nine and ninety-eight one hundredths are still in the public domain, and I ask you, in all candor, do you blame us for using rather strong language when our development is retarded by executive orders issued at the behest of faddists who cry that Alaska is being gobbled up.

Alaskan Coal Question.

In regard to the so-called Alaskan coal question, the practically unanimous expressions of the people of our section are voiced in the following extract from the memorial to the Secretary of the Interior previously referred to:

“Alaskans recognize that the Alaska coal problem is hopelessly perplexing, chiefly because of the vast discharge of wholesale misinformation. Alaskans know that there is no danger of an Alaska coal monopoly. The coal fields are widely scattered and of far less value than advertised in hysterical print. Alaskans generally believe that the coal lands should be disposed of under existing laws for development by private enterprises, relying upon the government to deal with monopoly should it be threatened. Recognizing, however, that in the present exaltation of the Eastern mind through the epidemic of conservation, this is impossible; many Alaskans are inclined to urge that the government itself undertake the operation of the coal mines. If this could be done successfully by a competent official board, it would vindicate the theories of those who believe that the government should have absolute control of its remaining fuel supply. If a capable Government commission, with full power to manage business under regulated statutes should be unable to accomplish satisfactory results, the project could be abandoned after a few years.

“It is needless to repeat arguments often iterated to emphasize the folly of continued bottling up of Alaska coal. Alaska residents are paying exorbitant prices for fuel and the government is paying unnecessarily high prices for coal transported from the East for naval and other Federal uses on the Pacific coast, while political agitators wrangle over the unknown possibilities of Alaska coal fields.

“The leasing system is unanimously opposed in Alaska, because it is un-American, and further, because it would intensify rather than diminish, the chances of monopoly. None but wealthy corporations

could do anything with a lease and they would demand concessions unlikely to be granted, and which, if granted, would license monopoly. The leasing dream would mean indefinite postponement of coal mining in Alaska."

Large numbers of people in the states advocate the leasing of the Alaska coalfields without a second thought upon the matter. It is not generally known that the leasing of mineral lands in the United States has been tried, proved a disastrous failure and was condemned by two Presidents of the Nation in messages to Congress.

A high government official has recently returned from Alaska advocating the leasing of the coal lands there and citing the case of British Columbia as an example of where the leasing system works well. This is not denied, but the cases are vastly different. Does an applicant for a lease in British Columbia have to enter into negotiations with officials in London acting under laws passed by the British Parliament? No! Does he even have to go to Ottawa? No. At Victoria the laws are passed by local people, the negotiations entered into and consummated all right at home.

Alaskan Committee Report.

I wish at this point to quote from the report of your committee on Alaska affairs made to this session of The American Mining Congress. I very much regret that time does not allow the reading of this report in full. This report represents the work of many months of painstaking labor on the part of that committee, but it will be published with the records of this session. It being probable that some of you at least will not read this report, I take the liberty of quoting from it as follows:

"We are also opposed to making of Alaska the experiment station for new ideas. We are unable to find where the leasing system has ever been successful in the operation of coal fields under any government. Leasing is perhaps successful to some extent in the coal mines of Pennsylvania, where a market is near at hand and transportation is well provided, frequently by competing lines, and the leases are from individuals. It is not a government leasing system.

"It has been said that the leasing system works well in British Columbia, Yukon Territory, and in Australia and New Zealand. We can only repeat the statement that a half-truth is frequently the most dangerous and misleading falsehood. The system in British Columbia is in no sense a leasing system as is proposed in the United States. The lessee in British Columbia may obtain a lease of sixty-four hundred acres for five years, with a renewal for three years, but is privileged at any time during the lease, or within three months thereafter, to purchase the lands at \$20 per acre. It is a significant fact, too, that no mines are operated in British Columbia under the leasing system. All are operating upon granted lands. There is a law for leasing the coal lands in the Yukon Territory. The only attempts ever made to operate under that law resulted in failures. There is not a single coal mine operated in the Yukon Territory upon a lease from the government. In a similar manner the laws of Australia and New Zealand provide for

private ownership at the option of the lessee. It is reported that much coal is mined there under a leasing system, but that is because the operators do not find it necessary to exercise the option given them to purchase the land. They are given that option, however, and are thus afforded the security of private ownership whenever they see fit to exercise the privilege. No such system has been proposed for Alaska. None of the leasing bills introduced in Congress permit the lessee ever to acquire title to the land. The Robinson bill now pending before Congress even provides for only a portion of the royalty upon coal mines in Alaska to be expended in the territory, and the balance is to be turned into the treasury of the United States. It is a rank injustice to compel the residents of Alaska to pay a royalty into the Treasury of the United States upon the coal they consume. Why not a similar royalty from the consumers of coal elsewhere? The consumers of Pennsylvania coal would object to paying such a royalty to the Federal Government, and the consumers in Alaska are entitled to urge the same objections.

"Poor old Alaska has surely had quite enough of the leasing system. It was leased by Russia from 1799 until 1867 to the Russian-American Company. That company was the absolute lord and master, and its leasehold sovereignty absolutely prevented development. Fortunately nobody was lured there under false premises. Only those went there who did so for the Russian-American Company. A leasing system was not inflicted upon honest, hardy pioneers as is now proposed by the American government. Fortunately, for the United States, Alaska was not colonized or settled by the Russians. Their leasing system prevented it. Otherwise the Russian people would have so well developed Alaska by 1867 that the United States could not have bought it for two cents an acre, with its wonderful fisheries and a fur seal herd of 6,000,000 thrown into the bargain. The first thing we did, however, was to lease that seal herd to a company which in forty years made a net profit of \$5,738,000 and depleted the seal to about 75,000. In the meantime, the United States Government spent more money in patrolling the seal islands than it obtained from royalties on the lease, and Alaska got absolutely nothing, not a cent in taxation, not a light-house, not a school house, not as much as a flag pole. Now, the United States Government has gone into the sealing business itself, and has already begun to make a profit. But this kind of talk may lead us to advocate the building of railroads in Alaska and the operation of coal mines there by the Government."

Our opposition to the leasing system is based upon another, and, we believe, a higher principle. It places the control of our resources in the hands of a power five thousand miles away,—out of touch, out of sympathy, and indifferent to local needs and requirements. It is a return to the system of land tenures that obtained in feudal days, where the landlord was both landlord, law-giver and law-interpreter. It has been argued that a large number of coal mines of the United States are operated on a leasing basis—but these leases are between man and man, both of them standing equal before the law and having to submit any differences that may arise between them to a court before whom they stand as equals. This system of governmental leasing leaves the question of any differences to be decided absolutely in the hands of the lessor. There is still another objection in the fact that this system will in all probability not stop with the governmental leasing of coal mines.

We have seen the forest service organized ostensibly for the purpose of conserving the forests gradually, stealthily, insidiously, and in many cases without a shadow of law to back their actions—extend their fields of operations. We have seen them assume control of our water power. We have seen them grab our wharf sites. We have seen them meddle with the mines included in the forest reserves to the great detriment of that industry. We deny that a people can be considered a free people who live under a system in which the owner of the land is both the landlord and the law.

Any number of schemes that are probably practical and workable ones in such small compact countries as Switzerland or New Zealand are absolutely unworkable in a country as vast as ours.

The securing of title to a few acres of land in Alaska involves almost endless correspondence with Washington, the unwinding of miles of red tape and generally years of delay; and the matter of issuing patents to government lands is something in which our officials have the experience of over a century to guide them. To introduce some new system now would, as the Valdez memorial states, "mean the indefinite postponement of coal mining in Alaska."

Abolition of Forest Reserves Urged.

One of Alaska's needs is the immediate abolition of forest reserves. The recent and present governors of the territory have in their reports condemned them. I wish to speak for a moment, upon the Chugach reserve in which I live. This reserve covers thousands of square miles along the southern coast, more than ninety per cent of which is utterly destitute of timber, being barren slopes, glaciers and mountains above timber line. Less than ten per cent is covered with a scattering growth of spruce, hemlock and cottonwood of inferior quality, practically all mature and largely super-mature. Not a foot of this timber will ever be exported. In fact, a large part of the lumber used within the limits of this reserve is shipped from Puget Sound. It is only useful for local needs, and should be used by our people without undue restriction.

Forest reserves are supposed to be created to provide timber for future generations, to attract rainfalls, to regulate stream flow, to prevent forest fires and provide government revenue.

Let us take up these propositions in turn.

First. What is the use of preserving timber that is falling down and rotting of old age for future generations?

Second. As to rain fall, the area embraced within the limits of this forest reserve receives a rain fall of from seventy to one hundred and twenty inches per annum. As over ninety per cent of

this reserve is destitute of timber and the treeless Aleutian islands to the west of us receive more rains than we do, the idea that the cutting of the timber needed by our people will have any effect upon rain fall is utterly absurd.

Third. As to stream flow, our streams largely have their sources in the everlasting glaciers, and would flow bank full for centuries without a drop of precipitation.

Fourth. As to forest fires, there never has been a forest fire in this reserve, and never will be, soaked with rain in summer, and covered with snow in winter.

Fifth. As to government revenue, it has cost the Government two dollars for every one it has collected so far, besides imposing a cost of thousands of dollars upon our citizens in obtaining permits.

We defy the forest service to show one single benefit it has conferred upon the people living in this reserve, upon the people who will live in it in the future, or upon the people of the United States generally.

In conclusion, I wish to state that in my opinion there is no Alaskan question any more than there was a Montana question or a Colorado question fifty years ago. All we wish and all we ask is the same rights as have been accorded the pioneers of other territories in their primitive struggle for development.

Wanted, an Informed Public Sentiment to Support a New Federal Policy Toward Alaska.

BY HENRY R. HARRIMAN,
SEATTLE, WASH.

The American Mining Congress is the best friend Alaska has ever had and God knows she needs friends. But that we may meet on the level of absolute frankness I confess to a strong hesitation, in attempting to discuss this subject even with you, who as a body are undoubtedly best informed as to her merits and most kindly disposed to her welfare and success.

As Governor Clark of Alaska rightly points out in perhaps his most recent interview, the fuel question is the vital one in Alaska. Vital in the basic needs of that extreme climate. Vital to the future development of Alaska as a territory and as an organized community. Vital in a large sense to the commercial needs of the whole Pacific coast. Vital to the pre-eminence—to the safety even—of the American Navy on the Pacific; and a living issue perhaps not the least that in its righteous solution will, in no small way, determine whether the land policy trend of this Government will falter or will continue to higher levels.

In the kaleidoscope of conflicting and bewildering ideas from what angle shall we study this subject?

The Guggenheims in Alaska.

Shall we attack the Guggenheims? This is a very popular method of approach—and sometimes retreat—and requires little courage. No white plumed knight is apt to pick up the gage of verbal battle in support of that somewhat sordid institution. But suppose we should entertain you with a narrative of the sins of the Guggenheims, and some of their peccadillos have not as yet appeared in print, of what profit, gentlemen, would it be in this discussion?

The Guggenheims exemplify in an unusual degree that which is unlovely and uninspiring in corporate greed, blunder and grab. Incidents such as the "Controller Bay Case" are not the figments of reportorial imagination. It has been intimated to me that the Guggenheims do not require an introduction to this audience.

But, gentlemen, there is something more important and vital than the *sins* of the Guggenheims; and that is the investment of

real money and big money in the commercial development of Alaska.

Not chiefly in that fascinating and speculative development that means ultimate and early exhaustion of placer gold fields. Not in those other forms of so-called development that spell large immediate profits and speedy destruction. Not chiefly in these. But in the less alluring, entirely permanent and deeply essential business of railroad building, quartz development, and industrial investment.

Of course not unselfishly. But their railroad in a successful effort to reach their *one* mine affords transportation to scores of other prospects and properties in which they have not one cent's worth of interest; traverses valleys highly suitable for agriculture, free for the taking; and from the beginning provides a market for the farmer who will settle there.

Competent railroad men who have studied that line say that unless the mine is robbed this railroad, as a commercial investment, will not be attractive for several years to come. But its commercial importance to Alaska cannot be over-estimated. Bear in mind that not one pound of freight can be hauled over this, or any other road in Alaska, except upon a tariff first approved by the Honorable Secretary of the Interior; and that for the past several years every foot of right-of-way granted in Alaska by stipulations, precedent to such grant, is subject to a very intimate control by the Secretary of the Interior both before and after construction.

It takes courage and foresight to make this sort of investment in Alaska, and this is the only sort of investment that will build the Territory into self-sustaining statehood.

I have always been classed as an Independent in Alaska. I have no reason to love the Guggenheims; but I challenge your broad experience and your fairness when I say:

That the man or men with a million dollars to invest in Alaska—or anywhere on the globe—may rightly expect to purchase at jobbers' rates. The man with one hundred thousand dollars will surely get wholesale rates; while the man with one thousand dollars buys at retail.

Some day we will learn that wholesale attack upon profit in business is not an assault upon special privilege, even though, from the concentration of investment, the profit bulks large. Rather should the "Spirit of '76" be ever vigilant that no monopoly of route, or harbor, be permitted; and the spirit of fair play divorce herself from envy.

For any man or group of men who have the courage to most largely put their money into the permanent mining and commercial development of the Northland, are entitled to permanent and substantial rewards. They should be given every reasonable encouragement and honest inducement, and their property should be made secure and be respected.

Federal Responsibility.

The chief duty in this respect lies at the door of the Federal Government. Titles must be made stable and there must be an honest and prompt fulfillment by this Government of its part of the bargain; so that it may again become a proper bulwark of strength, instead of a synonym of delay and oppression.

Let it be unequivocally announced at Washington that every encouragement and safeguard will be given to lawful enterprise; but that the monopolization of harbors, routes or resources will not for one moment be tolerated.

Let Washington be no longer like the mature maiden who hesitated, vacillated and delayed the acceptance of the long overdue proposal because she feared she *might* become the mother of a son who in manhood's years *might* commit some crime and suffer the penalty of the law.

And to those of us whose humbler efforts to develop the Northland are circumscribed by limited personal means; and those who have no opportunity of Alaskan investment, let me say: "Beware of that antagonism which is not unmixed with envy; and is founded not a little on fear."

For the greatest calamity that could befall Alaska is that any large group, or source of capital should be so harassed by the Administration, and so exhausted by the petty hostility of the people at large, that it should abandon the effort, and its unfinished, wasted and unproductive investment stand as a monument of warning to the business world.

Rest assured that government-built and owned railroads are too good to come true, nor will Alaska be developed and her wealth shared by the American people by any system of Government development, or by Government ownership and a leasing system. It is much to be doubted if the maximum return from royalty leases would provide with lucrative inspectorships the highly eligible patriots who now occupy that band-wagon.

I am unquestionably an Independent; I am classed as anti-Guggenheim; but I say, as I have always said: "Fight for a square deal and the open door. Keep alive the 'Spirit of '76,' but be hon-

est and broad-minded, and hope and strive that Mr. Guggenheim and every citizen may have one hundred cents and a fair profit for every dollar he or they put into Alaska!"

The refusal of this Government or any constituted authority worthy of the name of Government, to administer existing law with the force and effect intended by the Congress simply because men might be tempted, or because it was charged by non-resident officials that men *had* been tempted to attempt its evasion and take advantage of its generosity, is a travesty on the name of Government and unthinkable at least in this Republic.

Against such a policy, measured in terms of courage, the old maid just described, hesitating over her first proposal, is a veritable Joan of Arc.

Alaskan Coal a Political Issue.

They tell you that the Alaska fuel question has been for some time a political issue. There is some little truth and some little reason in that statement.

In a notable article published this month *Mr. Gifford Pinchot* frankly admits that conservation also is in politics to stay. He says: "In the work of stopping the waste of our natural resources, the master quality is foresight. Political foresight is as necessary to prevent the failure or destruction of the conservation program as practical foresight is to prevent the destruction or monopoly of the forests or the coal fields of Alaska. It is therefore not only natural but necessary and right that an advocate of conservation should look ahead in politics."

I was asked by a little group of congressmen just before adjournment, "Mr. Harriman, what is hurting Alaska today? What is the trouble?" "I can answer you in four words," I replied, "if you will promise not to take offense." This being agreed to, I gave them the answer. "One-nine-one-two," and there was silence in heaven for the space of half an hour.

The Alaskan fuel question is rightly perhaps in politics today. I for one would gladly submit this or any other question to the suffrage of the American people, granted first and always that the people have a chance to weigh the facts before voting, and that the great parties do not take sides before the real facts and merits are known.

It is unfortunate that a man of great abilities and a pre-eminent opportunity for usefulness should have wholly committed himself upon this question in the academic privacy of his study on the unsupported data of a zealous young man who had himself in-

vestigated the Alaskan question in the streets and byways of Seattle and in the poorly lighted document room of the modest land office at Juneau.

It is doubtless unfortunate that that young man and his equally zealous and ingenious co-partner had never been within five hundred miles of the Alaskan coal fields; and that their frank admissions show them also to be cruelly handicapped by a virgin ignorance of all practical things pertaining to mining.

It is unfortunate that before Mr. Pinchot enunciated his policies as to the preservation of the forests in the coal fields of Alaska that he did not have the benefit of a conference with some one who had actually seen these primeval forests, as he would have found that a hundred square miles of these coal lands are shielded from the cruel blast by less standing timber than makes marketable many a section of timber in the states of Washington and Oregon.

It is a public misfortune that in his recent trip to Alaska he spent more time in the hotels of Cordova and in the defense of his pre-determined policies before an exasperated and perhaps unsympathetic audience at Cordova, than in the forest and coal fields of Katalla eighty miles away.

It is to be regretted that he did not borrow an axe and visit these forests which he has conserved from the ruthless hands of the man who otherwise might have built a log cabin or warmed his children before a wood fire. It is regrettable that a brief momentary experience of the exigencies of a pioneer life did not send him in search of an armful of firewood. For a few blows of the axe and an hour in this forest reserve would have shown him that the trees there are passing their prime and are already so dry rotted that sometimes only one tree in three or four is fit for firewood.

It is unfortunate also that he did not learn that such standing timber there as might still serve a useful purpose possesses but little over half the tensile strength of States timber, and is of relatively small commercial importance in the future of the coal mining industry in Alaska.

Burden of Complaint "The Forestry."

The members of your Alaskan committee have not been partisan in this matter. In a series of informal conferences had with the mining men in various quartz mining communities I pledge you that we gave no intimation of the personal views of our committee. We simply asked them to state freely their ideas, and make any

suggestions or statements which might be of interest to the Mining Congress. And the burden of their complaint was "The Forestry." Their inability to use timber to open their prospects and mines, to use any waterpower, and the successful opposition by the forestry to the patenting of quartz claims on which any standing timber was reported.

We found one man, and one man only, a very intelligent and likable gentleman, who mildly took up the cudgels for the Pinchot policies. He avowed that "there might be something said on the other side." Later we inquired what his business was, and were enlightened to find that he was operating a little power water plant. "Where does he get his power?" we asked. "Oh," they said, "he has some sort of a lease of the falls back of town." "From whom?" we asked, mildly curious. "Why, from the forestry department," was the answer. Can you see the picture of the phonograph and the devoted listener?

It is unfortunate that men of standing, native ability and sincerity, such as Mr. Pinchot, must approach these questions wholly in the dark as to the facts and merits, and are forced to lend ear to those disinterested patriots who go about the country at their own expense, and furnish interesting reading matter at rates attractive to both reader and author.

And it is to be regretted that frail mortals that we are, having once publicly committed ourselves to an attitude or policy as to a given state of facts, we are prone to review these facts or visit the section under discussion in a sincere and wholly unconscious effort to strengthen our position, for granted that the earth is flat, there is much—even in Holy Writ—to support the contention.

A few days after the Controller bay story "broke," as the newspaper men say, a very eminent congressman, whose utterances on that subject had shed light upon several pages of the Congressional Record, sent for me and said: "Harriman, where in the deuce is Controller bay?" I do not quote him with exactness.

That is the trouble. There is no better nor more useful public servant in the halls of Congress than that gentleman, but like the small boy with the stomach ache, he only knew there was trouble somewhere. He couldn't tell just how serious it was, and his only recourse was to lift up his voice.

The point is obvious. If the men in Congress and in public life have not gotten the facts, what of the American public who oppose monopoly and want to deal squarely.

It is idle to abuse the special agent, it is unfair oftentimes to attack the executive officers of the land office. They have no alternative but to carry out the policy of the existing administration, and are very much in the same position of a firing squad executing upon a comrade the decree of a drum head court martial.

The report of your Alaskan committee last year might be properly entitled "Wanted a New Administrative Policy for Alaska." That report, which you so generously endorsed, stands with full force today.

Since that time a new and vigorous governor has made an extensive tour throughout his territory, and is looking its problems squarely in the face.

Since that time, in season and out of season, Alaska's delegate to Congress has been fearlessly demanding "a new deal and a square deal for Alaska," and has won an ever increasing support. Since that time three cabinet officers, including the new Secretary of the Interior, have visited Alaska, and reported to the President. And the Secretary has shown his wisdom in asking the co-operation and advice of our *own* Dr. Holmes and the *only* Dr. Brooks and their splendidly informed staffs. And since that time the eminent judge, who presides at the White House, has been studying the various plans, which unfortunately do not always agree, weighing the facts, and promises speedy and equitable judgment.

So we again say "Wanted. A New Policy," and what is equally important, "Wanted. An Informed Public Opinion to Support and Encourage Such a Policy."

A tradesman in the vicinity of Boston, in a small way of business, asked me last week if Alaska was a part of the state of Washington. He is in no sense characteristic of the East, but his knowledge of geography is as poor as is the average good citizen's acquaintance with the essential conditions in that remote territory.

Eastern Man's Advice.

A few months ago at an earnest gathering of Alaskans, an Eastern man, invited for his recognized impartiality and wide experience, said in effect: "I have just returned from Alaska. My preconceived ideas, gathered from all I could find in the Eastern press, have been radically modified. My advice is: Raise a few thousand dollars' expense and invite one or two eminent Eastern magazine writers to Alaska, and through them the true facts will

begin to come before the people—particularly the Eastern readers—and you will get immediate sympathetic support.”

Gentlemen of the American Mining Congress, it is pertinent to the subject, and I believe it is fair and right that I tell you, that members of your Alaskan committee have by invitation attended at least a half-dozen subsequent meetings, at which, in the aggregate, fully seventy per cent of Alaska coal claimants were represented. It was proposed to take some action upon the advice I have just described, and I say to you, with no desire to belittle these men, that by no further self-sacrifice could they raise the needed money until this question is settled.

Further than that, some months ago certain congressmen let it become known that if a representative Alaskan mining man would come to Washington he would be given a fair and impartial hearing. A committee of Alaskans worked for several days, and had several meetings, and finally the bare cost of a return fare was raised. And if that Alaskan unrolled his blankets elsewhere than in the public parks at Washington he did so at his own expense.

And why should this be? These men are of the same bone and flesh, courage, experience and ability, as those who in other fields of Alaskan exploration have already won a pioneer's reward. But consider their condition. Their explorations, privations and discoveries have been held as naught, and their money spent in development has been claimed as a forfeit.

When you decree the title to a man's home is void, you rob him of that home; and rather you destroy a man's credit and standing, you had better turn his family into the street. So I say to you that there are men of Alaska who have spent the savings of their lifetime, and the money of their friends in the development of small areas of coal land, who have years ago paid the American Government its price in full for that land; and against whose entries no charges or intimation of charges have been made by any special agent or other official—who cannot get their patents or raise or borrow a dollar on their property.

And what is the reason? It is because—please do not misunderstand the spirit of this utterance when I say to you—an increasingly large number of people, in the West at least, have come to believe that, irrespective of the merits or desserts of the individual, but in response to what is thought to be a public demand, the American Government is going to repudiate its statutory obligation and wipe out all existing claims.

"And for what end and for whose benefit?" they ask. "*In order to lease these claims which the toil and labor and savings of others have discovered, prospected and partially developed, to the obvious few whose condition of special privilege will alone enable them to operate Alaskan coal measures under a leasing system.*"

A Leasing Bill No Remedy.

I am not at this time attacking the leasing system of Alaska coal *per se*. It is a straw man, as yet unsupported by merit, sound morals or reasoning; and we will not turn aside to take serious issue. Yet lest we be understood to impugn the ability or sincerity of the able men who have been learnedly discussing or outlining proposed leasing bills for Alaska coal, let me say, with all possible emphasis and care, I have examined with much appreciation at least one such proposed measure. It shows admirable care and marked ability. Its author I am pleased and proud to know; and *with him I have no controversy on the merits of the existing coal cases*. He will, I think, frankly tell you that he knows little or nothing about them. He has had neither opportunity nor reason to know about them. Get this, please, in fairness to many members of Congress of whom he is representative. He has merely been asked, as an eminent authority on public land legislation, to draft a bill for the leasing of coal lands contained in the public domain in Alaska with special safeguards against monopoly and abuse. I only wish that the *same man* might be constituted the impartial tribunal for the determination of all the pending cases; and that he had the opportunity, in a judicial capacity, to thoroughly sift the facts and merits.

The Alaskan coal question is still unsettled even by the passage of such a measure. *Let us first bury the corpse before we part its garments amongst us.*

Is it proposed instead of a patent to offer the claimant a lease? If he is entitled to a patent the offer is unfair to him, and if he has obtained his claim by fraud, the offer is equally unfair to the Government.

A Profound Unrest in Alaska.

Alaskans are either entitled to patents, or to nothing at all. To refuse a patent and suggest a lease, or to wear out by interminable delay one deserving of a patent until he offers to exchange his birthright for a lease, is a course that we still refuse to believe possible. But it has been freely charged. And it has been as freely said by otherwise conservative men from many parts of Alaska, that *if submitted to the suffrage of the residents of Alaska*

they would roll up a majority in favor of annexation to a neighboring Dominion. And there are in Alaska fully as large a percentage of men who have fought under the flag as may be found in any part of the United States.

And this statement does not imply a lack of love of country or of inherent patriotism. It arises from stern economic-bread-and-butter conditions.

It is a matter of general knowledge that our neighbors across the line have been singularly happy and successful in the handling of their public domain irrespective of distance from the seat of government. Results to which our existing system in Alaska does not as readily lend itself. So that while these same men might favor annexation, there are hundreds of them that if need arose would come home to fight for the flag against any extra-continental foe.

Fair Play for the Grubstaker.

That earnest band of patriots whose outcries, like those of Gideon's Band, have been mistaken by the administration as the voice of the people, and the voice of God, have summarized the Alaskan question into a *Proposition*, a *Corollary* and a *Q. E. D.* which may be stated thus:

The Proposition Is:

Granted that while, possibly, the man who in *Alaska* actually discovered the coal vein and chopped and drove the stakes may have some right; and that after a few more years' deliberation he may be sought out in some Old Soldiers' Home or poor house and be handed a moss-grown patent; yet the man in the states who gave him the money to buy his ticket to Alaska, bought the flour and bacon he ate, the shoes he prospected in, and the axe that drove the stake, this man, who made the whole thing possible, is a non-resident robber, a conspirator, and should be promptly indicted.

This is the *proposition*, and I may add that such a man is usually depicted behind a mahogany desk in the East. Why the telling detail of a plug hat has been overlooked I cannot say.

Now comes the corollary:

"Corollary."

The resources of Alaska belong to *all the people!* Therefore, and *Q. E. D.*, we will take away from the *wicked few*, whose savings have made even its existence known, and give it unto *all the people*, who have toiled not, neither have they spinned, and yet the

bulk of whom, unlike the heavily endowed Prophet, readily *need* the money.

No man with a day's business experience, no man with moderate powers of observation, but can recognize the enormous injustice of such a proposal.

Transportation in Alaska.

BY DUNCAN M. STEWART,
SEWARD, ALASKA.

Mr. Chairman and Fellow Members of the American Mining Congress:—My first duty is to express my keen appreciation of the honor conferred upon me by the invitation to address you, and if only that honor did not carry with it a serious responsibility and a heart-rending feeling of inability to rise to the importance of the occasion and deal adequately with the subject, I could with all honesty, express to you my happiness also.

I believe any man who has the temerity to address a public meeting invests himself with a responsibility to *say* something; to deliver a real message; and when it comes to addressing one of the most powerful organizations of men in America on a topic of vital interest to a country twelve times the size of New York state, and whose land area is more than the combined area of the states of Washington, Oregon, California, Arizona and Nevada, the burden of responsibility is certainly not diminished. I feel that a man in such circumstances should divest himself and his remarks of clap-trap and buncombe, adhere strictly to facts, and avoid sensationalism. We have enough of that sort of thing in the utterances of some public men who know little or nothing of the real conditions in Alaska, and for that matter wherever great issues are discussed and great political questions involved, where even the flag is not sacred, but has to be unfurled to the wind of verbose orators and then held at angle to hide in its glorious folds the ignorance or casuistry of the speaker.

Realizing then my responsibility as one privileged to address this great meeting, as a resident of Alaska; as one deeply interested in the development of its natural resources—yet holding no brief from any corporation or coterie of individuals—I beg to assure you, and all those to whom these words may come, that what I have to say to you today is absolute, unadulterated fact. For this reason I shall refrain from expressing mere opinions; I shall not discuss the merits or demerits of a leasing system; I shall not question the desirability or otherwise of government ownership of railways; I shall not expatiate on any contentious subject, but will confine myself entirely to a statement of incontrovertible facts regarding transportation and kindred matters in Alaska, and leave it to you

to draw your own conclusions and decide what we are going to do about it. With this understanding, I bespeak for the subject your kind attention and earnest consideration and for myself your generous indulgence.

In the first place, Alaska is a beautiful and delightful country; and its climate is the most salubrious in the United States according to army vitality reports and the experience of the civil population residing there.

Every Alaskan harbor south and east of Cook Inlet is ice free and open to navigation all the year around. While the ports of Quebec, Montreal, St. John, Albany, and Buffalo are absolutely closed to navigation during the winter, all of the most important ports of Alaska, excepting Nome, Fairbanks and St. Michaels, are open to winter transportation. Ketchikan, Juneau, Skaguay, Cordova, Valdez and Seward enjoy at least a weekly mail service from the United States, and the three last named towns are situated on harbors that are unexcelled, if not unequaled, by any others on the Atlantic or Pacific coasts. These three place, Cordova, Valdez and Seward, are the winter ports for Alaska proper. Skaguay is an important port but is mainly used in winter to go to Dawson, which is in Canada and not in Alaska, as many Americans seem to think. Even the post office department is not always sure on this point, and it is on record that one of Uncle Sam's alert inspectors wrote sharply to the post master at Dawson for the usual returns which were not arriving in Washington as promptly as the regulations required. That official of his Britannic Majesty, however, replied that he had been faithfully forwarding the returns to *his own* government at Ottawa, where they belonged!

Three Seaports Natural Termini for Railroads.

These three sea-ports are the logical and natural termini for railroads to the interior—for what we may call trunk lines—but only at Cordova has the steel been laid for any material distance. There the Copper River & Northwestern R. R. has trains in operation for something over two hundred miles and has been hauling ore that distance from the Bonanza mine since last April. This is a standard gauge road of heavy construction, steel bridges and well-ballasted track, that has the comparison entirely in its favor when compared with the best pioneer railroads of the Northwestern states and Canada, lines that now constitute the great transcontinental systems of America. This magnificent road has opened up to prospectors a country which otherwise would have been closed to them forever, and hundreds of people are living along its route

and towns springing up that were not, and never would be, on the map before this enterprise became effective. This is what is known as the Morgan-Guggenheim road, so popularly believed in the east to be "bottling"—rather than opening—up the country. Yet this road has made it possible for men to penetrate far into the mountain ranges and placer valleys in search of precious metals that would have been irretrievably locked up without it. Before the advent of this railroad it would take a man a whole year to get a camp equipment and outfit of supplies as far into that section of the country as he can now go in twenty-four hours.

At Valdez there is not enough track laid to dwell on the feature of railroad transportation there, but that is the starting point of the Government trail to Fairbanks. All roads and trails built by the Government in Alaska are in charge of a road commission, under the war department, and are properly described as "military roads." This road, from Valdez to Fairbanks, is one of our best, and has been of tremendous importance to Valdez and the country generally in opening up the mining territory tributary to Fairbanks and the Tanana River and developing a great gold producing camp.

At Seward a standard gauge railway has been completed for seventy-two miles and surveyed for seven hundred miles, including branch lines, through the very center of Alaska. This road, which is known as the Alaska Northern Railroad, gives a very efficient car service daily except Sunday for passengers and express freight, with an occasional steam locomotive freight train, as traffic demands. This company does not operate in winter as it is undergoing a financial re-organization, which, by the way, was brought about by the action of a federal judge who granted a receivership on the petition of one man, without according a hearing, or even giving notice, to any official of the railway. He appointed his own brother-in-law receiver at a salary of \$1,500 per month and expenses, and then immediately adjourned his court for six months, thereby effectively preventing the owners from removing the receiver and re-obtaining the management of their own property. This corrupt judge was removed from office later in punishment for this crime, and that is about the extent of the aid the present administration at Washington has given to this particular enterprise. The passenger traffic of this road is very heavy in summer and its right-of-way affords excellent traveling for dog-teams in winter, being used as part of the "Seward-Iditarod Trail" for about eighty miles.

Although originally intended to primarily tap the resources of the Kenai Peninsula, Kuskokwim, Susitna and Tanana River valleys, the *raison d'etre* of this line now is the coal of the Matanuska valley, which Government authorities claim to be the most valuable of all known coal fields in Alaska. In this section recently Mr. Gifford Pinchot traversed part of the survey route of this railway, and had to do so on foot by the way—which I trust emphasized in his case the desirability of improved transportation facilities and I heard him say that the soil was as rich as that of the richest of our western states. At all events, he saw several varieties of edible berries, such as currants, raspberries, blueberries, cranberries, etc., growing wild in the utmost profusion, while there was such a continuously luxuriant growth of “redtop” grass—which happened to be wet at the time—that he could only describe his progress by saying that he “*swam over that trail.*” He did not, however, observe any great evidences of human industry, any serious attempts at farming or clearing off this rich land, much less a succession of towns and villages. No, the route to these coal fields is at present traversed only by a horse trail; you cannot drive a wagon over it; the Government did nothing towards it, and it cannot even be dignified by the title of “Military Road.” It is an expensive business getting in supplies over it; there are no attractions about it for the prospector or pioneer; in short *there are no transportation facilities.* But build a railway into that country; open up the coal mines and operate them, and people would flock there; a local market for the food products of that rich soil would be at once created, and the land would blossom as the rose.

Transportation Great Problem of Alaska.

Transportation is the most transcendently important problem confronting Alaska today. The speakers preceding me have given you accurate, as well as graphic, information about its coal, its gold, its copper, its timber, and other great natural resources. You have heard from sound, practical men how they would deal with the homestead laws and the coal land laws, and the people of Alaska have received from others a variegated multitude of panaceas for all the ills that country is heir to, but let me assure you that there can be no real cure for her troubles that does not include in its composition the subject of transportation. All questions affecting the physical development of Alaska are indissolubly connected with the one great question of transportation.

The opening of the coal lands is absolutely essential to the building of railways through central Alaska by private capital. Of-

officials of the Alaska Northern R. R. inform me that they are unable to operate trains hauled by steam locomotives so long as they have to pay fourteen or fifteen dollars per ton for imported coal, as they do at present, and I understand that competent officials of the Pennsylvania R. R. say they could not operate that great system profitably at a coal fuel cost of twelve dollars per ton. At Seward, the terminus of this railroad, private individuals pay seventeen dollars per ton for coal, whereas if the Matanuska coal was available the article could be bought for from \$5 to \$7 per ton, and have a much better grade of coal at that.

You have heard from other speakers that while the coal fields of Alaska are withdrawn from entry it becomes a crime (larceny) to use local coal. The anomaly thus created is best illustrated by the plight in which the Tanana Valley Railway finds itself. There is an abundance of good steam coal along the right of way of this road, and a scarcity of timber, but it is forced to leave the coal and burn wood at a cost of about \$12 per cord! Should not this be set right?

There are eight lines of railroad in Alaska with about 500 miles of track. Five of these are purely local, catering to the traffic of the mines in their respective territory. The other three, namely, the Copper River & Northwestern; White Pass & Yukon and the Alaska Northern are the most important to the country generally, and of these, the White Pass & Yukon Railroad is the only one affording transportation facilities into the very interior of Alaska, by way of the Yukon River, and that is partly through Canadian Territory, with only 112 miles of track all told. This route to the interior can only be used advantageously in summer, as the Yukon River is frozen in winter. This road, which was a financial success from its inception, was built with English capital and has been of great value in developing American territory on the Alaska side of the border.

What these two railway enterprises have accomplished in the way of developing the latent wealth of certain sections, and much more besides, can be achieved by the building of a trunk line along the projected route of the Alaska Northern Railroad, and the people of Alaska do not care who build it; they will extend a hearty welcome to the owners of such a project whoever they may be. There is not a coast town in Alaska today that is not envious of Cordova, because it has a real, live road, steadily and irresistibly forging its iron way into the heart of the territory contiguous to that terminus. The people of Alaska differ among themselves on political and

economic questions, and they are far from unanimous as to the best method of exploiting its great natural resources; but they are a solid unit on the subject of transportation, and they are quite indifferent as to whether private capital or the United States Government build trunk lines of railway and good wagon roads, *so long as they are built, and that soon.*

Wagon Roads Needed.

But the building of trunk lines, or any other lines, of railroad is not the only essential; there is even a more crying need for good wagon roads. The appropriation for roads and trails in Alaska is woefully inadequate, and the methods of expending it are distinctly bad. I could point to instances where new trails stopped short in the middle of the woods, having reached nowhere, because the appropriation for that particular piece of work became suddenly exhausted. I have seen the necessary repairs to an existing Government road discontinued at a critical spot for the same reason, although a surplus existed after the completion of some other specific work, but it could not be availed of, under the regulations governing these funds. The adoption of such methods in the building of roads by private capital would end inevitably in bankruptcy and failure. And let me say here that the Alaska road commission and the excellent officers and gentlemen who are charged with its administration are not to blame for the unfortunate conditions to which I have alluded. The people of Alaska owe a great deal to the Road Commission for the zeal and efficiency it has displayed and the work it has accomplished in the face of "red tape" and ridiculously inadequate money appropriations. These gentlemen do the best they can, but the results, nevertheless, are horrible. Some of the Government roads in Alaska are a disgrace to the Nation; even the Government employes themselves are ashamed of them, and with a view to bringing home to Congress and the people of the United States the wretched results of their efforts, as compared with those achieved under a policy of enlightenment and common sense, they have inserted in some of the official publications issued at Washington illustrations taken from actual photographs of American and Canadian roads in Alaska, and the adjoining Yukon Territory. On one page you will see the picture of a beautifully smooth, well drained, level Canadian road, fit for a pedestrian, an automobile, or a landau, while on the opposite page you will find an illustration—an American road—of a streak of mud, roots and rocks, unfit for the use of man, beast, or machinery, and positively ruinous, alike to a man's soul and body.

In the administration of justice and the building of public roads and trails in the far Northwest, the Canadians have us beaten to a standstill. We have just the same kind of country as they have, only more of it, yet they have more people and infinitely better transportation facilities on their side of the imaginary border line. Why should this be? I have given you the facts and leave the answer to yourselves. I venture one reply to this question, and it is, that the average member of the Canadian Parliament is in much closer touch with the actual conditions prevailing in his country as a whole—even to its remotest corners—than is the average member of the United States Congress regarding his great country. Indeed it seems as if ignorance is at the bottom of most of Alaska's troubles; ignorance of its immense area; ignorance of its climate; ignorance of its resources, and what is worst of all, ignorance of its people. The most widespread misconceptions are probably those regarding its climate and people. The generally accepted notion is that Alaska is a land of perpetual ice and snow, inhabited mainly by Eskimos, while the facts are that not more than one-third of it is within the Arctic Circle, and that the great majority of its population is white—a mixture of the best elements of the Caucasian race—the identical class of red-corpuscled people who placed Oregon, California and Washington among the great producing States of this Nation.

Every trunk line of railroad in Alaska can be operated daily in winter. The White Pass & Yukon Railroad runs trains every day in the year except Sundays; the Copper River & North Western Railroad runs trains often enough to accommodate the traffic and maintains its line open the entire winter. The Alaska Northern can operate on as regular a schedule in winter as in summer; while the Tanana River Railroad, which is in north latitude 65°, conducts a train service all the year round. I have already intimated that the only Alaska seaports closed to navigation in winter are those on Behring Sea and Cook Inlet. We have grand glaciers and magnificent mountains, some of them capped with perpetual snows, and in these as well as other respects Alaska possesses a wealth of scenic features that would turn the passenger agents of some of our great American, Canadian and European railways green with envy. We have also flowers and sunshine, beautiful gardens and flowing hayfields, Christian churches and secular schools, and such a generally salubrious climate that the death-rate among the white population is the lowest in the world.

If we can dispel the ignorance and disseminate the truth; if we can enlighten the congressional representative from our individual district, and all the other legislators with whom we come in touch; if we can get these well-meaning people to understand the real, actual conditions in some measure as we who live in Alaska know them, I believe we can look forward hopefully to the adoption of relief measures which will lead to the development of Alaska on a scale commensurate with its size and the importance of its potential resources.

Support of Congress Necessary.

The solution of the transportation problem will cause most of our troubles to vanish, but we are not going to solve it by vituperation and abuse, especially of the powers that be. I believe that the President and the Secretary of the Interior are alive to the real situation and needs of Alaska, and that they are sincere in their desire to bring order and good out of the existing chaos, but they and their successors in office, must be powerless without the support of Congress, and I think that is the real body to which we must address ourselves. If we can obtain the sympathetic ear of a majority in Congress, the Government may be authorized to render some assistance to private capital, either by way of guarantee of bond interest or a land grant, or a coal grant, and thereby insure the building of a great trunk line of railway from the sea to the Yukon river with which to unlock this wonderful treasure box, to the enrichment of the whole nation. Or, Congress may decide to have the Government build and operate such a line and thereby retain the key in its own hands. That it will be a richly paying proposition for the owners, whoever they may be, is not doubted for a moment by anyone familiar with pioneer railroading in the Northwest, and particularly so in Alaska under an enlightened policy of trail and wagon road building, which would create feeders and great arteries of traffic for the main line.

In a new country capital, for obvious reasons, expects greater rewards than in older and more settled communities, and with the inducements which are being constantly offered in such countries as Mexico, Brazil, Argentina, Russia, China and Africa, it behooves us to see that no unnecessary handicaps are placed upon capital seeking investment in Alaska, and above all when such capital is seeking investment in the all-important line of transportation. I believe the enormously enhanced value of properties caused by the building of such a line, in conjunction with a proper system of

wagon roads and trails, would amply repay the Government for any assistance it might render to private capital in the promotion of such a laudable enterprise. On the other hand, while I am not an advocate of government ownership on general principles, I have no hesitation in saying that if the people of the United States were to build such a trunk line system for themselves, and operate it on business lines, the return on the investment would be comparable only to that made in Egypt for the people of Great Britain by that far-sighted statesman, Benjamin Disraeli, when he purchased for the nation the shares of the Suez Canal.

The High Grade Coals of Alaska.

BY WILLIAM GRIFFITH,
SCRANTON, PA.

As engineer and geologist we have had opportunity on two separate occasions to study and report upon the economic conditions affecting the coal resources of one of the principal coal fields of Alaska. We now find that the people of the United States are being taught erroneous, extravagant notions regarding the economic value and extent of these fields, by the wildly exaggerated statements and fanciful misinformation drawn by some of the writers whose articles and schemes appear from time to time in the magazines and newspapers of the day. Therefore, we deem it a patriotic duty to make the following brief, plain statements of the geological conditions which control the economic value of these much talked-of coal areas; this more particularly at the present time, when our legislators are about to enact laws for the control and proper conservation of these important national resources and should do it with accurate knowledge before them of the conditions which prevail, in order that the laws they enact may the better fit the circumstances.

In common with all the coals of the Pacific coast, those of Alaska are found among the rocks of the more recent geological age, and speaking generally the coal beds which occur in sediments which are in the low lands near to the coast belong to the grade commonly known as lignites, sub-bituminous or bituminous coals. The great bulk of Alaska coal belongs to one or the other of these classes of ordinary fuels. So undesirable are these low grade coals for high-grade uses that the United States is compelled to transport Pennsylvania and West Virginia coal from our Eastern ports, around Cape Horn to the coaling stations on the Pacific, to be used as steam coal for the United States Navy, there being no high-grade fuel now available for this purpose on our western coast.

As we proceed Eastward from the coast toward the mountains (which in Alaska are nearly all of volcanic origin) the existing coal beds become much improved in quality, and we therefore find the highest grade coals of Alaska imbedded in the sedimentary strata of the mountains, close to the igneous or volcanic rocks, and

the gradation of the coal from the low-grade lignite to high-grade bituminous and anthracite is the direct result of the remoteness or proximity of the once hot volcanic rocks, the heat from which has caused more or less distillation of the volatile gases contained in the once low-grade coal, thus leaving the high fixed carbon required to constitute a high-grade fuel.

On the Pacific coast of the United States there are only two coal fields of comparatively small extent, in which fuels of the latter sort are found in quantity. Both of these are in Alaska and are known as the "Matanuska field" and the "Behring River" or "Katalla" field. The former contains bituminous and semi-bituminous coking coals, with some anthracite, and is located 200 miles northwest of the Katalla field, which latter is situated near the coast of Controller Bay, about 100 miles southeast of Valdez, Alaska, and carries in the Western part semi-bituminous and in the easterly portion excellent anthracite coal. The combined areas of the two fields is one or two hundred square miles. Notwithstanding the superficial extent, their actual content of commercial and minable coal as of present day practice is apparently limited, and the wildly exaggerated statements which have been made of the quantities of this high-grade fuel are probably due to lack of correct information, and the resulting presumption that the mode of occurrence and condition of the beds is similar in all points to the Eastern coal fields of the United States.

Large Areas Without Minable Coal.

In Pennsylvania, West Virginia and Ohio the coal beds usually occur horizontally. Each superficial acre may be expected, with a reasonable degree of certainty, to carry its underlying acre of all the coal beds of the measures; and therefore a similar extent of coal field in the Eastern part of the United States would carry a tremendous quantity of minable coal. This is not true of these important Alaska coal fields, for as will probably be discovered later, from fifty to seventy-five per cent or more of the superficial area of the region probably contains no minable coal whatever, because the structural geology has been so affected by the adjacent igneous rocks, which are much twisted, contorted, folded and faulted on account of the quakings and serious disturbances which as everyone knows, are common to volcanic rocks everywhere, that the coal beds contained in these adjacent sediments are likewise much disturbed, and instead of being disposed in regular basins or in horizontal undisturbed position in the earth, the coal beds are usually found existing in monoclinical form, with steep dips, nearly vertical

oft-times. The coal is much crushed, due to the tremendous rock pressures, and the beds are liable to much distortion and folding and are very uncertain as to extent or continuity, being frequently interrupted by dikes or intrusions of lava. They also carry much dangerous mine gas.

All of these irregularities will render the extraction of the coal very expensive, and the available quantity in a given extent of the bed exceedingly uncertain and much less per unit of volume than in the undisturbed eastern coal fields.

Again, the geologist finds his study of Alaskan coals rendered very difficult and uncertain on account of the thick mat of Alaska moss which covers the entire surface (except at those points where rock exposures are caused by the erosion of the stream banks) and by the lack of key rocks, or absence of similitude in the strike, dip, intercollated slates of the coal beds, and the dissimilarity of the overlying and underlying rocks, and the sequence of the stratification, thus rendering the identification of the seams at different localities practically impossible. The prospecting and exploitation of the coal is therefore very difficult and at the present time has not progressed sufficiently to warrant reliable estimates. Indeed, the exposures and data from which to draw conclusions as to quantities are very meager, and therefore in our opinion, at the present time no well qualified, careful estimator would place the quantity of commercially minable coal in these two fields beyond possibly 300,000,000 tons; and even this may be far too much. Thus the combined total of the present high-grade coal of Alaska, instead of being, as has been often stated, far beyond the content of the Pennsylvania coal fields, is only about one two-thousandth part of the commercial tonnage now estimated to be contained in the anthracite fields alone, to say nothing of the great additional quantities of bituminous coal in that State. Pennsylvania alone actually produces nearly, if not quite, as much coal every year as the combined content of these two Alaska fields.

As an offset in a measure, of the above related conditions unfavorable to economical mining, these coal fields are still only partially explored, and future exploitations may lead to the discovery of additional coal beds now unknown.

Good Profit Requires Large Production.

In the western part of this country most of the prospecting is done by people who are more familiar with metal than with coal mining, and who are accustomed to expect greater values from comparatively small volumes of ore. With coal, on the contrary,

great value means large quantities, and the latter requires extensive and expensive mining development both inside the mines and outside, and railroad transportation must be provided. Goodly profits at coal mining require large production, and, therefore, until the underground exploitation of the beds has proceeded far enough from the coal miner's point of view to develop the habits of the beds at lower depths with respect to their continuity, regularity, and folded or crushed condition, in order to determine the probable economic yield of a given coal bed, the great outlay of money required for land purchases and the outside mining improvements and transportation should be considered a hazardous expenditure by the careful investor.

In view of the foregoing, we should say that 2,000,000 tons per year is a liberal average tonnage to expect from these two coal areas, and at the high royalty that has been mentioned by the press would have an annual value of about \$1,000,000, which might perhaps continue for 100 years. At four per cent the present worth of such an annuity is approximately \$25,000,000, without considering the deductions usually made to cover the ordinary uncertainties of mining. And, therefore, in our view, the fabulous value recently assigned to these Alaska fields is simply the utterance of words without knowledge.

Our present laws and restrictions have evidently been formed through a misconception of the conditions as well as the absolute necessities of that rich district. Therefore, for the present they are working an actual hold-up or estoppel to the commercial progress of Alaska. What the district now requires for its development more than anything else, is transportation facilities. The building of railroads in Alaska means the introduction of labor-saving machinery, cheaper food and materials, more and cheaper labor, and a general amelioration of the stern conditions which now prevail; and their introduction will immediately be followed by an outflow of wealth far beyond our expectations, which will be wrought out from the abundance of low-grade ores or placers, and from the tailings or refuse from the rich diggings of the past years, which cannot now be profitably worked and are necessarily wasted.

Capital Abundant.

Capital is abundant, ready and anxious, but the building and operation of railroads requires coal as well as dollars. The prime necessity of Alaska, therefore, with respect to railroad construction, is the opportunity to *utilize* some of its dormant coal reserve, not necessarily the best of it, but even the lower grades. "Any old

coal" will answer where none is at present available. All Alaska coal lands have been withdrawn from entry. Coal of all kinds is fairly abundant and well distributed throughout the territory, but under the present legal restrictions no man may mine it. An operator of a small coal mine on Cook's Inlet was arrested for selling to other than the U. S. Revenue vessels; and in some parts of the District the timber is being rapidly exhausted for fuel purposes, on account of the scarcity of coal.

Conservation without utilization is a wrong idea and a sprag to progress. Most of the Alaska claimants are after the best coal; and therefore, in accord with the proverbial wastefulness of the American people, the present aspect of the coal situation in Alaska points toward the speedy consumption of the small, high-grade part of the Alaska coal and the discarding of the more plentiful supply of medium and low-grade fuels.

Let our Congress, therefore, enact its new laws for the control of this question with full knowledge of the situation. And if forsooth, it is proposed to control the coal industry of Alaska through some sort of leasehold arrangement, let us provide a high per-ton royalty for the relatively small quantity of high-grade coal we possess, and a lower rate for the medium and low-grade coals; thus arranging the royalties, if you please, on a sliding scale in some manner proportionate to the percentage of fixed carbon contained in the coal; or some similar plan which will force the conservation of the *very important high-grade navy fuels* for the higher uses of the district and the Nation, to which they are adapted, thus in a measure compelling the mining of the lower-grade coals for the more ordinary local purposes necessary to the development of Alaska.

Conservation vs. Encouragement.

MARTIN FISHBACK,
EL PASO, TEXAS.

Just before the assassination of that great and good man, Abraham Lincoln, Schuyler Colfax left Washington to cross the continent. As Mr. Lincoln bade him farewell, he said:

“I want you to make a speech for me to the miners you may find on your journey. I have very large ideas of the mineral wealth of our Nation. I believe it practically inexhaustible. It abounds all over the Western country, from the Rocky Mountains to the Pacific, and its development has scarcely commenced.

“Now the rebellion is over and we know pretty nearly the amount of our national debt, the more gold and silver we mine makes the payment of that debt much easier. I am going to encourage that in every way.

“We shall have hundreds of thousands of disbanded soldiers, and many have feared that their return home in such great numbers might paralyze industry by suddenly furnishing a greater supply of laborers than there will be demand for.

“I am going to try to attract them to the hidden wealth of our mountain ranges, where there is room for all. Immigration, which even the war has not stopped, will land upon our shores hundreds of thousands more every year from overcrowded Europe. I intend to point them to the gold and silver that waits for them in the West.

“Tell the miners for me that I shall promote their interest to the utmost of my ability, because their prosperity is the prosperity of the Nation. We shall prove in a very few years that we are indeed the Treasury of the World.”

This was the last message, almost the last public utterance that came from the inspired lips of Mr. Lincoln. Those prophetic words, uttered nearly half a century ago, still make the heart of a miner glow. How different from the “encouragement” the miner and prospector receives from a paternal and beneficent government at the present time.

The purchase of Alaska is generally accredited to the far-seeing enterprise of W. H. Seward, Secretary of State under Lincoln, and afterward under Andrew Johnson, but is it not possible that this purchase was inspired by the wisdom of Lincoln?

Anyway, on March 30, 1867, the transfer of 581,107 square miles was made to the United States for the sum of \$7,200,000, known as Russian-America-Alaska; on June 20, 1867, ratifications were exchanged, and the formal transfer made to Gen. Rosseau, at Sitka, October 9, 1867.

At that time there was much dissatisfaction expressed all over the country at this high expenditure of public money "for this miserable barren waste of ice and snow," and General Sherman said, in speaking of it: "Give 'em seven million dollars more to take it back, and be thankful to get off so cheap."

Forty-four years have come and gone since that time, and we find that the far-seeing enterprise of Mr. Seward made no mistake; that before even one-fourth of this vast region has been even partially explored, and only a few thousand acres surveyed, Alaska has returned her purchase price many times over; we find that "this miserable barren waste of ice and snow" has since 1880 yielded a mineral production of \$186,000,000, out of which \$179,000,000 is represented by the value of the gold output.

Since the year 1800 about 3,000,000 square miles have been added to American territory at a cost of approximately ninety million dollars, all of which the output of American gold for most any one year since 1900 more than paid for; Mr. Lincoln's prophecy has been well sustained.

Not so very long ago some wise wags even attempted to create an over-production-of-gold scare. We do not hear any more about it now. Why? Simply because the rapid increase in the production of gold and silver of a few years ago has ceased. It is a safe prediction that in a very few years more the pendulum will swing in the opposite direction, at least so far as the United States is concerned—under the present system of "conservation, reservation and withdrawals," or whatever name one chooses to call it by.

The present standard of the gold and silver production in America is kept up and maintained by improved metallurgical methods applied to low-grade ores and dumps at old mines which were previously considered unprofitable, and not by virtue of any new discoveries. By a little mental figuring it is not hard to see the "beginning of the end" of the large gold and silver output in this country, if the Government persists in "conserving" the unexplored mineral districts for some distant future generation.

Of course, we are told that it is far from being the intention of prohibiting "legitimate settling and prospecting"; contrariwise, the Government's desire is to encourage it, and all that sort of stuff;

but the fact remains that all prospecting and exploring has practically ceased throughout the entire mountain regions of the West; the oldtime, hardy, intrepid and intelligent prospector has been driven out of the field. If you ask him why, he will likely tell you that he does not propose to be bulldozed by some impertinent forest ranger, who knows less about minerals than the horse he rides, nor take dictations from him as to where he may or may not prospect.

Forest reserves over mineral areas the prospector does not object to; the average prospector has more regard for the timber on his claim than the Government itself; he is a conservationist by instinct; what he does object to are the intolerable restrictions to which he is subjected, and he has quit the field in disgust.

There is something radically wrong with the system as now in practice, especially with reference to the unexplored mineral areas in the Western States. In a very few years this unwise policy will be "brought back" with a vengeance if it continues along the same groove.

Would it not be far better to leave each State to work out its own "conservation" to suit its own peculiar needs? Anyway, encourage and protect the pioneer settler and prospector.

Coal and Transportation in Alaska.

BY MAURICE D. LEEHEY,
SEATTLE, WASHINGTON.

We are pleased to note during the past year a deeper interest in the affairs of Alaska throughout the United States. Much that has been published is misinformation. Some half-truths have been told, and these usually constitute the most dangerous falsehoods. On the other hand much truth has been elucidated, and the aroused interest and the resultant agitation must lead to a better understanding. The Alaskans are Americans. Practically all of them came directly from the states, and every state in our union is represented in Alaska by some of her most enterprising sons and bravest daughters. Consequently, the Alaska people are patriotic, and they have exercised for years a patient, philosophical patriotism, because they have confidence in the honesty of the American people, and know that when the American people are fully and correctly informed justice will be done.

The Honorable Walter L. Fisher, Secretary of the Interior, accompanied by Dr. Alfred H. Brooks, of the U. S. Geological Survey, and Dr. Joseph A. Holmes, Director of the Bureau of Mines, visited the principal ports of Southern Alaska last August, and made such an investigation of conditions as the limited time would permit. Secretary Fisher impressed all with his ability and sincerity. His pleasing democratic manner made friends of all Alaskans whom he met. However, Alaska has had several visits of cabinet officers and congressional committees during the past few years without visible results. The Administration has for several years recommended legislation with reference to Alaska without visible results. In the meantime laws applicable to Alaska have been suspended by the withdrawal of public lands from entry. Naturally, Alaskans are disposed to criticize the Administration quite as much for its failure to proceed under existing laws as to blame Congress for the failure to enact new legislation. It is popularly understood that the coal question is the most important problem in Alaska. This is not entirely true. The great problem is that of transportation, and the coal question is chiefly important for its bearing upon transportation. Alaska requires railroads to the interior, and it is manifest that these railroads will not be built until the Alaska coal is placed upon the market.

Coal was mined in Alaska by the Russians long years ago, probably soon after the settlement of Sitka and Kodiak; the oldest towns on the Pacific coast of America, whence supplies were shipped to California and along the Pacific coast before San Francisco, San Diego or Seattle were founded. These Russian coal mines, though, never became of commercial importance, and our American people paid no attention to Alaska coal until after the gold rush to Cook Inlet in 1896 and to the Klondyke still later.

The general coal land laws of the United States were extended to Alaska on June 6, 1900. Prior to that time attempts were made to locate coal lands in Alaska, but there was no law permitting the same, and even the general coal land act of 1873 has been inoperative because it applies only to surveyed land, and the public surveys have not been extended to Alaska. After another delay of four years, Congress passed the act of 1904, which provides for coal land locations by private surveys. Such legislation was urged on Congress by the President's message. Congress acted, and on April 26, 1904, the President approved the law now in force permitting individual entries of 160 acres of coal land to be designated by private surveys at the expense of the applicant. About 1,000 coal claims were located under this act. Some 300 of these have been surveyed at the sole expense of the claimants who have also paid into the United States Treasury nearly \$400,000, but so far not a single patent has been issued. It has been charged that most of those claims are invalid. We presume that only the officials of the general land office have sufficient knowledge to speak of all entries, but we do know of certain claims which are entirely valid, made in strict compliance with the law, and which should have been patented years ago. We know of men who went into both the Katalla and Matanuska regions and spent their time and money in the utmost good faith, strictly complying with the law in its every detail. Indeed, some of these men have actually lived upon their claims during all these weary years of waiting. Such applications there are which have been pending for four years and more, and yet no action has been taken, no charges filed, and in some cases not even the slightest suggestion of an irregularity has been made, although during all of these years a score of field agents have been at work, interviewing claimants and other persons who might have some knowledge, and employing every means of a skilled detective force to ascertain possible fraud or irregularities.

Has this long delay been caused by a gigantic conspiracy to unlawfully acquire and monopolize the Alaska coal fields? Or, was it caused by another conspiracy, which has for its object the nullification of the laws solemnly passed by Congress, and the substitution of a leasing system in the Alaska coal fields, without any regard to the rights of those people who proceeded in good faith according to law?

Why the Delay?

Thirty-one months after President Roosevelt signed the act of April 28, 1904, that same President issued an executive order withdrawing all these coal lands from entry. The executive order nullified the act of Congress. The order was so sweeping as to even suspend action upon claims already filed, and the register and receiver were thus compelled to refuse to file notices of locations made even prior to the withdrawal. Some months later the order was modified so as to permit action upon existing entries. It was admitted that patents should issue to valid claims located between April 28, 1904, and November 12, 1906, but so far all that has been done is to file charges against certain claimants, which charges have resulted in an order for the cancellation of one group. But, we repeat, there are many applications which remain pending after all these years without any action, not even charges filed or suggested. Why this long delay? Surely the illegal acts of one should not entirely prevent action upon the claims of another against whom no charges have even been made. Rather was not this delay caused—and is it not continued, in furtherance of another conspiracy to force a leasing system upon the Alaska fields.

This situation is the more aggravating because most of these particular claimants have agreed to accept patents under the limitations of the act of May 28, 1906. This act applies only to claims located prior to November 12, 1906, the date of the President's withdrawal. This later act permits the consolidation of such claims in groups of not to exceed 2,560 acres, and was intended to cure defects which might have resulted from the location of a group of claims in common, or with intention to combine after obtaining patents. It is manifest that a coal mine cannot be operated upon 160 acres. Consequently, many of these claims have located in groups by men represented perhaps by the same agent, and to some extent acting jointly, each individual however locating one claim and holding it independently, but having in mind possibly that some plan of joint action might be adopted after the issuance of patents. Congress intended to validate any irregularities in such

locations, but imposed severe conditions, as will be noted by Section 3 of the act of 1908, which reads as follows:

"That if any of the lands or deposits purchased under the provisions of this Act shall be owned, leased, trusteeed, possessed, or controlled by any device, permanently, temporarily, directly, indirectly, tacitly, or in any manner whatsoever so that they form part of, or in any way effect any combination, or are in anywise controlled by any combination in the form of an unlawful trust, or form the subject of any contract or conspiracy in restraint of trade in the mining or selling of coal, or of any holding of such lands by any individual, partnership, association, corporation, mortgage, stock ownership, or control, in excess of two thousand five hundred and sixty acres in the district of Alaska, the title thereto shall be forfeited to the United States by proceedings instituted by the Attorney General of the United States in the courts for that purpose."

This is certainly the most stringent anti-monopoly clause possible to frame in the English language. But three and one-half years more have passed since this drastic legislation, and still no action has been taken. Is such departmental inaction but the reflection of public sentiment? Perhaps it is. Perhaps it but expresses a conviction of the American people that the public land system which gave the great West the most splendid development in the history of the world, cannot now be extended to Alaska; that the enactment by Congress to do so was a mistake for which the honest coal claimants in Alaska must suffer, and those who took their little all of health and goods into Alaska, in full confidence that the laws of the United States would be enforced, must suffer loss because they had too much faith in the integrity of our Government. Be that as it may, it is unquestionably a fact that had the same policy been pursued in the early settlement of the middle West that is now being pursued toward Alaska, the buffalo would still be king of the plains. Chicago would still be a frontier town, Kansas City would be a mere trading post at the edge of the great American desert, and the now splendid cities of Denver and Minneapolis would not even be names upon the map.

Danger of Monopoly Exaggerated.

Alaskans are in full sympathy with the desire of the people of the United States that the great coal fields of Alaska shall not pass into the hands of a private monopoly, to be exploited solely for private gain. We believe, though, the danger of such a monopoly in Alaska has been greatly exaggerated. In fact, we who know conditions in Alaska, are convinced that such a monopoly cannot arise under existing laws, if properly enforced. We are also interested in the men who discovered these coal fields and revealed their wealth to the Nation, and in those men who spent their time and money to develop and prove the wealth of these fields. We

understand that the act of 1904 was an offer by the Government, and its acceptance by the bona fide locator constitutes a contract between him and the Government, and we are confident that the American people, who are fair and honest when correctly informed, will insist that the contract be kept.

We deplore the delay which has operated so much to our disadvantage, caused financial loss to many honest men and women who invested perhaps all they had in money, labor, health and enterprise, and gave several of the best years of their lives, relying on this contract with the United States. We refer not only to the honest coal claimants, but still more especially to the far more numerous band of hardy, enterprising people who went into Alaska, and have no direct interest in the coal fields, but engaged in various other lines of business, relying on the opening of these coal fields, and upon the building of railroads and smelters, to which the use of this coal is an absolute essential. It is in this way that the great loss to Alaska and Alaskans has really been suffered. Our appeal is for justice, not merely to the honest coal claimants, however few they may be, but also, and more especially, to that vast body of Alaskan pioneers who invested all of their time and money, labor and sacrifice, enterprise and energy, in trusting confidence that the law of 1904 would be fairly executed. Those pioneers are indeed the same honest, rugged, sturdy men and women who conquered the West, who opened the coal fields and iron mines of Pennsylvania and Ohio, who converted the prairies of the Mississippi valley into a blooming garden, who have conquered the plains and tunneled the mountains and made the great Northwest yield up its treasure of mine and field. These same men have gone into Alaska and endured the hardships and privations of the northland in an effort to open up that country in whose resources they have such abundant confidence. Some of them found their last resting place beneath the northern lights; many of them have left Alaska disappointed and disheartened, broken in health and spirit, while others still remain in the desperate struggle, many of them simply because they are unable to get away. It is difficult to picture the condition of these disappointed people along the Alaska coast, and we shall not attempt it, because we cannot do the subject justice in the first place, and our picture would be deemed overdrawn if we correctly portrayed it. These men have seen public officials, senators, congressmen and cabinet officers, visit Alaska and depart much impressed, but no results followed their visit. Consequently, it is not strange that many of those who welcomed Secretary Fisher to

Alaska on his recent trip, expressed doubt as to whether results would follow it.

We have full confidence in the earnestness and sincerity of the able Secretary of the Interior. His work is of the constructive type, and we feel that results will follow his visit. He made it quite clear to the people, however, that the Alaska coal fields will not be opened under the existing laws, because four-fifths of the American people have evidently become satisfied that the existing laws are inadequate, and that some other scheme must be adopted for Alaska. Naturally, we feel that Alaska should not be made an experiment station for new ideas. At least, not upon this coal question, which is so important to the people of Alaska, and yet so trifling in its relation to the great public question as to the future disposition of coal lands upon our public domain.

Mines at Tidewater.

We say coal is important to Alaska because it is necessary to transportation, which, after all, is the great need of Alaska. Stop to think of it, there has never been a producing mine at tidewater on the face of the earth, except in Alaska, while nearly all of the producing mines of Alaska are located at tidewater, where a ship may load ore from the bunkers. Alaska has yielded some \$200,000,000 in precious metals, practically every bit of which has been taken from places within sight of the smoke of a steamboat, including, of course, the placers along the Yukon River and its tributaries. We know of mineral deposits of fabulous wealth in the interior, immense areas of low-grade placers, rich gold quartz, and mines of native copper, but today they are as useless to us as if hidden in the chasms of the moon. Transportation is required, railroads must be built, but this cannot be done without Alaska coal. On the other hand, it is doubtful if there is a market for much Alaska coal outside of Alaska. Eastern people and those of the middle West do not appreciate that there is plenty of coal on the Pacific coast, much more accessibly located than that of Alaska, besides fuel oil in abundance, and the most marvelous hydro-electric power in the world. Even in Alaska the Treadwell mines and the Copper River Railroad are being operated by California fuel oil, and it is evident that Alaska steaming coal has little demand upon the Pacific coast of the United States in the face of such competition. A market will ultimately be made for some Alaska anthracite, and the Alaska coking coal will be of great importance, especially in the treatment of the low-grade copper ore along the Alaska Coast. The United States Navy, which is now importing coal from

West Virginia, might save the price of a battleship in a few years by using Alaska coal, but the Alaska fields really have little bearing upon the great question as to the future policy for the disposition of coal lands upon the public domain of the United States.

We accept the notice, however, that some new system must be adopted in Alaska, and consequently, your committee has given this subject mature consideration. Two methods have been suggested: one a leasing system, and the other, Government operation of the coal mines.

Any system for placing Alaska coal on the market must take the element of transportation into careful consideration, and the physical condition and situation of these properties should be understood in that connection. The two principal fields are the Bering river and the Matanuska. The Bering river is also commonly known as the Katalla field, as it is near that town. A few years ago the Alaska syndicate began the construction of a break-water at Katalla with the idea of developing a harbor there, but later abandoned the project, and moved its terminals to Cordova, a point on Prince Williams Sound, from which the Copper River & Northwestern Railroad has been built easterly across the Copper river delta and thence up that valley to the Bonanza copper mine. A branch line could be built from this road so as to make a total haul of about 85 miles from the center of these fields across the Copper river delta to Cordova. Much has been said recently concerning the merits of Controller bay as a harbor for the Katalla fields. Controller bay is situated about 15 miles from the coal, or about 25 miles from the center of the field, and has the advantage of distance and easy grade. The Government charts show a sufficient depth of water in Controller bay, but the navigable channel is small and can be reached only by building several miles of trestle, over the mud flats. These trestles with bunkers, wharves and terminal facilities at deep water, will be expensive to construct and still more expensive to maintain, because of the difficulty with ice coming out of the rivers each spring. Then, too, the harbor is only partially protected and is exposed to some of the most dangerous windstorms that visit the Alaska coast. The Alaska syndicate, financed by J. P. Morgan & Co. and Guggenheim & Sons, carefully investigated both Controller bay and Katalla, and spent perhaps more than a million dollars at the latter place, but finally abandoned both places for Cordova. There is no doubt that Controller bay is available as a harbor for some portions of the year, but there is no danger of a monopoly there for any one of its

several miles of mud flats is just as valuable as another, and we regard the judgment of the Alaska syndicate as expressing the general opinion of all people familiar with the Alaska coast.

The Matanuska coal field can be reached from Seward, on Resurrection bay, an ideal land-locked harbor, equal to any on the Pacific coast. The coal measures in the Katalla field are much broken, and require extensive development work to determine the most economical manner of mining the coal. The Matanuska coal fields are reported to be less broken but have the disadvantage of a longer haul. Transportation must be provided to each field, and this includes wharves, bunkers and terminal facilities, which must be built under the conditions prevailing along the Alaska coast. These items must be considered in our study of any system for the opening of the coal fields.

Application of Leasing System to Alaska.

A leasing system has been suggested and vigorously advocated. Your committee does not believe that any of the proposed leasing systems are favorable. We will not discuss the argument made against the leasing system by those who opposed its adoption in the United States. We will disregard the failure of the leasing system during the 40 years it was tried in the lead mines of Indiana and Illinois and the copper mines of Michigan, and will consider it only in its application to Alaska. The question arises, who will provide the transportation, wharves, bunkers and terminal facilities for the lessee? Capital must be procured, and hence capital must be assured security and a reasonable profit on the investment. Can anyone enter these fields upon the leasing system except aggregations of great wealth? We believe not. The system of private ownership enables the owner of the ground to secure capital upon the security of his title, but can this capital be obtained upon the securities of a mere lessee? This is manifestly impossible unless the lease be very liberal in area and terms. The lease must be so liberal in this respect as to justify a large investment of money, not only in the development of the mine, but for the building of railroads, bunkers, wharves and the construction of colliers or ocean-going steamers. We believe that any lease so liberal as this will create a monopoly in the Alaska coal fields far more dangerous than is possible under any system of "private exploitation." Perhaps the Alaska syndicate, with its railroad already built from Cordova to the east side of Copper river, can afford to build a branch of forty miles from there into the Katalla field, but if so, will there be any competition in transportation? Will any com-

pany be justified in building a breakwater at Katalla or another railroad from Controller bay into these fields, and provide bunker and terminal facilities with several miles of trestle over the mud flats to be maintained under such adverse conditions for operation during a portion of the year, and undertake all of this simply upon a lease? We do not believe capital can be found to engage in so hazardous an enterprise, unless, as we repeat, that the lease be exceedingly liberal in both area and terms, so liberal in fact, as to be more dangerous than any system of private ownership.

On the other hand, we believe that if patents were issued to the bona fide claimants, to those men who accepted the invitation of the Government and fully complied with its laws, we believe that if this were done, sufficient lands would be patented to encourage the building of railroads from points on Controller bay or near Katalla where a breakwater is possible, but it is the opinion of your committee that, if the leasing system be applied, the transportation will be in the control of one company. We regard as somewhat significant the advocacy of the leasing system by George W. Perkins, who says he bases his information upon investigations made during his visit to Alaska in 1909, while he was a partner in the house of J. P. Morgan & Co. and went to Alaska to inspect the properties of the Alaska syndicate. Your committee has only words of commendation for the enterprise of the Alaska syndicate, and believes it should be afforded every opportunity to realize handsomely on the investment of its millions for the development of the Territory of Alaska, but these remarks are addressed to the popularly expressed fear that this syndicate will control Alaska. We do not charge it with such designs, but we do believe that it will be much easier for the creation of a monopoly in the Alaska coal fields under a leasing system than upon a system of private ownership with the opportunities of the latter for competition and individual initiation. The same conditions apply to the Matanuska field. A railroad has already been built 71 miles in that direction from Seward, but construction work has been suspended ever since the withdrawal of the Alaska coal lands. The Matanuska coal field is the objective point of that railroad. If we assume that it is built to the Matanuska field, there to serve the lessees of coal lands, it will not require much effort of imagination to picture the possibility of favoritism and the creation of a monopoly in those fields. It is true that the Government may regulate railroad rates, but will competing lessees be satisfied that necessary branches or spurs will be built to connect their mines, and that cars will be provided when necessary?

We are also opposed to making of Alaska the experiment station for new ideas. We are unable to find where the leasing system has ever been successful in the operation of coal fields under any Government. Leasing is perhaps successful to some extent in the coal mines of Pennsylvania, where a market is near at hand and transportation is well provided, frequently by competing lines, and the leases are from individuals. It is not a Government leasing system.

Leasing Systems in Other Countries.

It has been said that the leasing system works well in British Columbia, Yukon territory, and in Australia and New Zealand. We can only repeat the statement that a half-truth is frequently the most dangerous and misleading falsehood. The system in British Columbia is in no sense a leasing system as is proposed in the United States. The lessee in British Columbia may obtain a lease of sixty-four hundred acres for five years, with a renewal for three years, but is privileged at any time during the lease, or within three months thereafter, to purchase the lands at \$20 per acre. It is a significant fact, too, that no mines are operated in British Columbia under the leasing system. All are operating upon granted lands. There is a law for leasing the coal lands in the Yukon territory. The only attempts ever made to operate under that law resulted in failures. There is not a single coal mine operated in the Yukon territory upon a lease from the Government. In a similar manner the laws of Australia and New Zealand provide for private ownership at the option of the lessee. It is reported that much coal is mined there under a leasing system, but that is because the operators do not find it necessary to exercise the option given them to purchase the land. They are given that option, however, and are thus afforded the security of private ownership whenever they see fit to exercise the privilege. No such system has been proposed for Alaska. None of the leasing bills introduced in Congress permit the lessee ever to acquire title to the land. The Robinson bill now pending before Congress even provides for only a portion of the royalty upon coal mines in Alaska to be expended in the territory, and the balance is to be turned into the treasury of the United States. It is a rank injustice to compel the residents of Alaska to pay a royalty into the treasury of the United States upon the coal they consume. Why not a similar royalty from the consumers of coal elsewhere? The consumers of Pennsylvania coal would object to paying such a royalty to the Federal Government, and the consumers in Alaska are entitled to urge the same objections.

Poor old Alaska has surely had quite enough of the leasing system. It was leased by Russia from 1799 until 1867 to the Russian-American Company. That company was the absolute lord and master, and its leasehold sovereignty absolutely prevented development. Fortunately nobody was lured there under false promises. Only those went there who did so for the Russian-American Company. A leasing system was not inflicted upon honest, hardy pioneers as is now proposed by the American Government. Fortunately for the United States, Alaska was not colonized or settled by the Russians. Their leasing system prevented it. Otherwise the Russian people would have so well developed Alaska by 1867 that the United States could not have bought it for two cents an acre, with its wonderful fisheries and a fur seal herd of 6,000,000 thrown into the bargain. The first thing we did, however, was to lease that seal herd to a company which in forty years made a net profit of \$5,738,000 and depleted the herd to about 75,000. In the meantime, the United States Government spent more money in patrolling the seal islands than it obtained from royalties on the lease, and Alaska got absolutely nothing, not a cent in taxation, not a lighthouse, not a schoolhouse, not as much as a flagpole. Now, the United States Government has gone into the sealing business itself, and has already begun to make a profit. But this kind of talk may lead us to advocate the building of railroads in Alaska and the operation of coal mines there by the Government.

The continued withdrawal of the Alaska coal lands from the operation of existing laws is doubtless an expression of public sentiment throughout the states. We desire something done and we believe the American people desire something done to make the Alaska coal immediately available, but above all, and first of all, transportation is absolutely necessary. The withdrawal of the coal lands, whether wise or otherwise, is solely responsible for the interruption of railway building in Alaska. If the Government will not enforce existing laws, if the present inaction is to continue in the Alaska coal field, or if some new system is to be tried there, then the Government of the United States should either build railroads in Alaska or guarantee the railroad bonds for a private enterprise.

Government Should Provide Railroads.

The Government should provide railroads in Alaska. There is ample reason for doing so entirely independent of the coal question. After all, the coal is important principally in its bearing upon transportation. If the Government controls the transportation of

the Alaska coal from mines to market, or at least from mines to seaboard where steamship competition will be possible, then the Government can most effectually prevent any monopoly in the Alaska coal fields. Indeed, a reasonable leasing system might be then feasible, but not otherwise. If the Government will provide the railways, bunkers and terminal facilities, and thus assure transportation at fair rates from mines to market, capital might be justified in mining some Alaska coal upon a leasing system. We repeat, that sound reasons exist for Government construction of, or aid to, railroads in Alaska, entirely independent of the coal question, and this brings us to the consideration of the greater problem of the development of Alaska.

The future of Alaska depends upon the development of the gold and copper mines and the low-grade placers of the great interior, and the agricultural development of the valleys which is sure to follow. These portions of Alaska are in the same latitude as Norway, Sweden and Finland. The cities of Seward and Cordova in Alaska, Christiana in Norway, Stockholm in Sweden and St. Petersburg in Russia, are within a few miles of the same parallel of latitude. The agricultural areas are as much larger and will become as much more important than the combined agricultural areas of Norway, Sweden, Finland and Northern Russia as the Japan current in the Pacific is larger and more influential than the gulf stream in the Atlantic. However, transportation must be provided before these agricultural valleys can be settled, and the farmers must be encouraged by the local market which will be afforded by the development of her mines. The Government should build railroads more cheaply for it can sell its 3% bonds at par, while a private corporation must sell its 5% or 6% bonds at a discount. The private corporation must at least earn its fixed charges, while the Government can afford to make lower rates and even operate at a loss during a few years to encourage the great development which will follow and which will more than justify the investment. Then, too, development will proceed more rapidly ahead of railway construction by the Government whenever a route has been selected. Capital can then be induced to immediately begin the development of mines in the interior, and homesteaders will settle in advance of the construction of such mines, because of the assurance of the Government that the road will be built, while in the case of private corporations, with the long record of receiverships which have attended such pioneer railroads, both in the United States and Alaska, it will be necessary to see the smoke of

the engine along the route before capital will be justified in making any heavy expenditures in the development of the interior. Railroads built in Alaska, and gradually extended from year to year, will shorten each year the winter routes to the interior and on to Nome, and will justify the construction of road houses and even villages along the line of such route, affording inns for the traveler, and providing a development in advance of railway construction which will make the transportation routes the more quickly profitable.

Coke Supply Important.

Another item of immense importance is the assurance of an adequate supply of coke at a reasonable cost. Smelters and matting plants would then be built along the Alaska coast for the treatment of low-grade copper ores, which really have more metal contents than the low-grade copper ores of Montana and other states. These ores exist in infinite variety all along the Alaska coast. Desirable blends of ore can be brought together at different places and a copper matte produced that will stand shipment around the world, if only an assured supply of coke be provided at a reasonable price. The smelter at Hadley, Alaska, paid from \$22 to \$30 a ton for coke, and even then operated successfully while copper was commanding upwards of 15 cents. With Alaska coke at \$8 per ton, the operation of such a smelter would be possible, even at the present low price of copper. Only the Government can give a satisfactory assurance of such a supply of coke at a fixed reasonable price.

We view with favor the agitation for Government aid in some form for railroads in Alaska. We note with satisfaction the interest which has been aroused in the Alaska question. It leads us to take a more optimistic view as to the possibilities of the immediate future. We believe that the system of private ownership which encouraged individual initiation, and gave the great West such a magnificent growth and development as was never equaled elsewhere in the history of the world, should not be lightly cast aside for new experiments in Alaska, in that land of distance and difficulties, and under conditions where large rewards must be offered both to capital and labor. But we realize the sentiment of the American people, and in deference to that sentiment we earnestly recommend that Government aid be extended to transportation in Alaska, either by the direct construction of railroads by the Government, or by guaranty of the securities of private railroads to be operated under reasonable Government control. With such a system provided, we believe it matters little whether the coal be mined

by the Government or by private interest upon a leasing system or otherwise.

There still remains the element of justice to those men who are entitled to patents under existing laws. Their rights should be speedily determined. This is but simple justice to them and the other people who have invested their money in good faith relying upon the promise of this great Government contained in its land laws, and believing that such laws would be equitably enforced.

Indeed it will be necessary to determine the right of existing claimants before the coal lands, in the Katalla field at least, will be available for the operation of any other system, for manifestly, nothing can be done upon the lands heretofore located until the rights of the present locators have been determined.

Alaskans have a common interest with the mining men of the states in all that pertains to the industry, and are in full sympathy with the splendid work of the American Mining Congress, but we have seen fit to discuss only the coal and transportation questions which are so vital to Alaska and the entire Pacific coast, both in principle and economics.

The Alaskan Coal Situation.

BY FALCON JOSLIN,
FAIRBANKS, ALASKA.

The Alaska coal situation and things in relation to the government of Alaska, seem at this time to be one of the most vital subjects that the American people are considering. All over the United States this subject is holding the attention of the American people, and I firmly believe most properly. When the people understand the situation I believe that it will be properly and justly solved. Our great difficulty is to get a fair understanding. The Alaska coal question is now considered to be a most tangled and difficult subject, and yet, gentlemen, I think the problems are comparatively simple. Everything that is not understood is obscure, and complex, and difficult, but when understood it becomes plain and definite.

I live in Fairbanks, Alaska. It is nearly 5,000 miles from Washington city. I have recently traveled from there here, and it took me 25 days to reach Seattle, the nearest American port from Fairbanks. I could have gone from Washington city to St. Petersburg and back in less time and with a great deal more comfort. That is significant only because it shows how extremely bad our transportation is; how remote the country is, and therefore the great difficulty of getting a correct knowledge of what it needs. I have been in Alaska and in the Yukon territory adjoining it for some fourteen years. In the Yukon territory I was foolish enough to undertake to develop a coal mine. I bought from the Canadian Government 400 acres of coal land at the price of \$10 an acre, the same price that the Government fixed upon the Alaskan coal lands. I tried to buy something like 1,000 acres more because when you undertake to open a coal mine you have got to have a big tract; your investment is heavy. I was not able to buy the additional thousand acres, because about that time the government in Canada hit upon the theory of leasing the coal lands, as we are now considering here. Though my application to purchase had been filed, it was treated as not a vested right, and it was required that I should take a lease of the land. Having already started the enterprise and having invested too large an amount to draw out, I was obliged to take the lease and did take it. I believe that is the only lease that has ever been granted in the Yukon territory of Canada to this day. I would

not have taken it, nor any man associated with me would have considered it for a moment, except under practical compulsion. Yet the coal leasing law of the Yukon is cited as an example to be followed in Alaska.

The leasing law of the Yukon is liberal, compared with the leasing bills for Alaska that have been introduced in Congress, but it certainly cannot be cited to prove the value of a leasing system. In order to illustrate the working of the coal land law in Alaska, I will relate my own experience with it.

Beginning in 1905, I have built in the interior of Alaska at Fairbanks; a narrow-gauge railroad about 45 miles long, extending from the Tanana river to the gold mines adjacent. I may say there is practically no development anywhere in that territory except within 30 to 50 miles of the rivers or the sea coast. Because there is no transportation, ninety per cent of the territory is absolutely inaccessible. Until better transportation than that can be provided by the rivers and by the sea coast, the country will still remain undeveloped.

'Vast Coal Field in Tanana Valley.

There is a great coal field in the Tanana valley, some 50 miles south of Fairbanks. It is an enormous coal field both in area and the thickness of seams. There are coal veins that are exposed 50 to 100 feet thick, six or seven successive veins, one above the other. They don't require any exploring whatever. You can look at them and see coal enough to supply many times more than the community could use in years. This coal was discovered fifteen years or more ago, but of course cannot be used until a railroad is built to it. That coal field lies across the river from Fairbanks to the south about 50 miles, the nearest point to us. To reach it we should have to cross the river and build about 50 miles of railroad. Four or five years ago a prospector came into my office and said that he had discovered some coal on the *north bank* of the river and within *thirty* miles of Fairbanks; that it could be easily mined and carried down to the town in barges; and that it lay so close to the bank of the river that it would be immediately available. We were using \$20,000 to \$30,000 worth of wood annually on the railroad and the community was using probably eighty thousand cords of wood annually at a cost of from \$9 to \$15 per cord. I had had some experience in the matter of mining of coal in Canadian Yukon territory. I knew with approximate accuracy how much coal could be sold in that community and what price could be obtained for it. I knew that about 20,000 tons of coal a year could be sold at that place at

about \$15 per ton. Coal at this price would be about half the cost of wood at the prevailing prices. Of course the community was then growing fast, so the market would increase with the growth of population. Also it was plain that when there was a larger tonnage produced, it could be sold cheaper.

When the prospector told me of the coal vein, I said at once that the coal would be important, and with him began to plan that we should acquire some of the coal land with the view of opening a mine. I began to look up the law, and found that there was a well-expressed, clearly-defined coal land law providing that an individual could purchase 160 acres of coal lands from the Government at the rate of \$10 an acre. The law was printed and published in pamphlet form by the interior department at Washington and there were a lot of regulations and instructions printed in the pamphlet to guide and assist one who might desire to purchase coal lands.

The first step as provided toward acquiring coal land was to mark out the land you wanted on the ground; that is, set up stakes at the corners of your claim and chop out the lines around it. This is called locating. If the land had been surveyed, this would not have been necessary for you could then locate your claim on a map and describe it as such and such a quarter section. But there was no surveyed land in Alaska and so it must be located by the applicant. When it was located, the applicant was required to file an application to purchase in the land office describing the ground as he had located it. When this was done that particular piece of land was yours, provided you should do the further things required by the law. The further things required to be done were that you must open a coal vein and develop a coal mine, thus proving the land to be coal land. You must also have the tract surveyed by a government surveyor, but at your own expense and you must file a map in the land office of the survey.

Price of Coal Lands.

The law allowed you three years after you located your claim in which to open and develop a coal mine on it, survey it and file your map. Then you were to pay the land office \$10 an acre for it and thereupon the law said that you should have a patent or a deed from the United States Government for the land.

This was and is a perfectly plain, sensible and reasonable law. We thought the price of \$10 per acre a pretty stiff price. It seemed to us that the Government might well give enough of that coal land to anyone who would open a mine and work it for it was entirely worthless as it lay undeveloped.

Coal lands can be bought at this day from private owners in Tennessee and Kentucky and, in fact, in every coal field in the United States at \$10 an acre and the Alaska coal lands should be cheaper. They are so far from the market and there are no railroads to haul the coal. Besides, this particular coal was a soft coal of poor quality. Yet it would be far superior to the wood we were using and it seemed that a mine could be opened there with some chance of mining and selling the coal at a profit, and without any great amount of capital.

We concluded that each of us would take up and locate 160 acres.

This would not be a large enough tract to open a coal mine. For you see a tunnel and haulage way in a coal mine may easily be a mile or two in length and if somebody should locate the ground around you, you could not extend your tunnel without coming into adjoining claims.

We, therefore planned to have various other friends and acquaintances locate adjoining claims so that together we should have a tract of land big enough to open a good mine and which could be worked for a number of years without being worked out.

We went to a lawyer's office to have the proper location notices and application papers drawn and there we were told that the coal land law had been suspended and that we could not buy coal lands in Alaska any more. When we wanted to know why and for what reason we could find none except that on November 12, 1906, the President of the United States had issued an order to all the officers of the various land offices directing them to accept no more applications to purchase coal land.

There was nothing in the law anywhere that gave the President any authority to do this, nor was there anything in the general law, or in the constitution, authorizing the President to suspend a law, but he did it. The Constitution gives the President the power to veto a bill before it becomes a law, but after it becomes a law, there is no authority in him to suspend it. On the contrary, the Constitution declares that the President shall see that the laws be faithfully executed.

Congress, of course, can repeal a law or amend it, or modify it, but the President's sole business is to execute it.

Result of Executive Order.

The law of the land with reference to the sale of coal lands in Alaska was abrogated by that order and the register and the receiver at the land office would not accept our applications to

purchase the land. They obeyed the order of the President rather than obey the law of the land. We had no power to compel them to accept our applications.

That is one of the great iniquities of the land laws. You have no recourse to the courts. The action of the land department is final.

We had to give up the effort to open a coal mine there. The law of the land was nullified by the order of the President. That coal land is conserved and that community has continued to burn wood to this day—sixty to eighty thousand cords a year.

I will show you clearly how the President's order nullified the law:

It has been a custom for many years when a certain tract of public land was needed by the Government for, say, a military post or a lighthouse or a telegraph station, or an Indian school, or some other use, the President has issued an order withdrawing the specified tract for the specific purpose required. For you see all of the public lands are for sale and always have been, under one law or another until this absurd idea of conservation arose.

Now, if the President had done this in reference to Alaska, there could have been no reason to object. For instance, if he had withdrawn from sale, say, 5,000 acres of coal land in each known coal field for the use of the navy and described the tract withdrawn, the other land would have remained open for sale and the law would have been preserved. But this was not what was done in reference to the Alaska coal land.

That order just swept away and "withdrew" from sale ALL the coal lands in Alaska. It was a complete abrogation of the law of the land on that subject.

Mr. Roosevelt has recently written that it was the criminal neglect of Congress that has stopped the development of Alaska, and Mr. Pinchot said the other day that Congress was responsible for the throttling of Alaska. I say that it was the criminal usurpation of authority by the President of the United States that caused the trouble—nothing else. (Applause.)

That coal land law was a good law. It was never repealed by Congress, but Mr. Roosevelt repealed it by an order. And it stands so to this day, confirmed now by another order by his successor in office to whom he bequeathed his policies.

Why, gentlemen, think of it! That coal land law has been on the statute books over seven years. More than a thousand men made their locations of coal land and filed their applications to

purchase before that order suspending the law was made and not a single one of all that thousand applicants has got a deed. More than two hundred of them went so far as to survey their claims and pay for them and the Government has their money. More than \$320,000 has the Government taken for the purchase of coal land and not a man has got his deed. The Government has the money and the land also and keeps it.

There is no telling how many applications would have been filed if the law had not been nullified. I would certainly have applied and no doubt many others, but we were deprived of our rights under the law by the arbitrary and unlawful order of the President of the United States.

We had the right, as American citizens, that the laws should be faithfully executed, but the law has been faithfully throttled instead.

Question Concerns Nation.

When that coal law of 1904 was passed by Congress, it was laid before Mr. Roosevelt as President for his approval. He could then have vetoed it. But he did not. He approved it. He must have thought it a good land law then. But two years later he changed his mind and abrogated it. I tell you, gentlemen, this concerns the whole people of the United States as well as the people of Alaska, for if one law can be trifled with by the executive in that way, any other law that pertains to this country may be abrogated in the same way.

It is difficult, gentlemen, extremely difficult for one who has felt the pinch and the injury of these orders, as I have, to speak with patience and without feeling about it.

We all know these orders to be illegal. They knew it at Washington, and they made heroic efforts to coerce Congress into ratifying them, but Congress never did. We have tried to force a test of the legality of these orders through the courts, but it cannot be done except by criminal procedure. I don't know the exact number, but there are probably more than a hundred men, perfectly good men, under indictment at this moment for trying to buy coal land in Alaska—exactly as I should have done if the officials of the land office would have taken my application. You see the Government, acting by virtue of these illegal orders, not only stopped any further applications from being filed, but would not permit any that had already been filed to complete their purchases. But they took their money and gave them receipts for it and then indicted most of them. I never clearly understood why they did not indict every

man who tried to buy a coal claim. Why, if I had got my application to purchase some of that coal land filed, I would no doubt be under indictment at this very moment. Because you see we would certainly have got a number to join us in the applications in order to get a tract large enough. And that they call a conspiracy to defraud the Government.

Some of these criminal cases have, after some tedious years, at last got to the Supreme Court of the United States. They were argued only a few days ago and it is possible we shall shortly know whether it is a criminal conspiracy for ten men to each apply to buy a coal claim if they had any mental idea among themselves that they would work their claims in one body after they got their patents. It would be the only way they could work them and it remains to be seen whether that way was a crime.

That coal land law of Alaska was declared by Congress to be for the purpose of aiding the development of coal mines. As construed by the executive department, it is a law to trap citizens into criminal conspiracies and get their money. We shall shortly learn how the judicial department construes it.

The administration of the coal law since 1906 shows a plain intention on the part of the Government NOT to carry out and administer the law according to its spirit and intent, but to defeat the law and nullify it according to some different spirit and intent.

Except in criminal proceedings, we cannot test the legality of the action of the department.

Sixteen Applications Pend in Fairbanks.

There are sixteen applications now pending in the land office at Fairbanks. They applied to purchase each 160 acres of coal land, as the law provides. The agent at the land office refused to accept the applications because the Roosevelt order of 1906 had "withdrawn" the land from the operation of the law. They appealed to the commissioner of the land office at Washington, claiming that the order was illegal and that they were entitled to buy the land as the law provided, but the commissioner sustained the orders instead of the law. Then they appealed to the Secretary of the Interior. Now it is the rule in reference to land laws that you cannot appeal to the courts until all remedies fail in the interior department. The Secretary of the Interior is the final authority in the land department. When he has finally passed on a question, you can then for the first time appeal to the court. The court you can appeal to, however, is not a court where the land is situated, but

your appeal is to the Supreme Court of the District of Columbia which sits at Washington, five thousand miles away.

Now, when these sixteen applicants at Fairbanks offered their applications they knew they would be rejected, but they planned to appeal to the commissioner of the land office and then to the Secretary of the Interior and get their decisions as soon as possible. When the Secretary's decision was rendered, they proposed to appeal at once to the Supreme Court of the District of Columbia and there get a judicial, not an executive consideration of those presidential orders. But though their appeal to the Secretary was filed more than a year ago, no decision has been rendered upon it, and therefore they cannot appeal to the court. They can neither get a decision one way or the other, and are thereby denied access to the courts.

We held a conference at Fairbanks this summer to see if some way could not be found to bring the cases into the courts in Alaska in order that we may have the orders of the President setting aside the coal law tested, but no way could be found. We discussed the plan of having one man claim the land for a gold mine and another for a coal mine, for there is both gold and coal in the same land, and then begin suit between them in the Alaska courts, but this it was decided would not test the orders, but only test whether the land was more valuable for gold than coal. We discussed the plan of going onto the land and beginning to mine coal, let ourselves be arrested for trespassing on Government land, but this also was given up because we could not induce the officers to arrest us.

So we are helpless until the appeals in the interior department are taken out of the pigeon hole and decided, if they ever are. No matter how unlawful the presidential orders may be, we have no way to test them when the executive department will only hold up the applications and not finally decide them.

Now the executive department that has abrogated the existing law proposes to coerce the Congress of the United States to pass a new law. They evidently assume that the existing law is wiped out by these presidential orders. And indeed it is in effect.

Complete Change Proposed.

They propose to make a complete change in our system of land titles. They would change from the freehold to the leasehold system. They want to retain more power over the people, in the bureaus at Washington. A thousand years and more ago, all the lands in England and France and most of Europe was held under leasehold. They called it the feudal system, and the people

who occupied the land as tenants were called vassals and were obliged to do humble service of allegiance in one form or another in order to hold the land. Gradually there came to be some who held their land free—free from any rent service, or military service or any other form of submission and allegiance, as a condition of the title: These were freeholders, free men. When the American colonies established their independence, the last vestige of feudal tenures was abolished and all the lands in the nation were held as freeholds and this country became a free country, not a country of vassals and tenants, but a land of freeholders and free men.

Now they propose to return to that old feudal system and make the people of Alaska tenants and tribute payers—to make them come as suppliants and vassals to Washington for leave and direction how to work the lands and permission, when they desire to transfer them.

Does the Government need revenues so much that it will put a royalty of ten cents a ton on coal that people may mine in Alaska? If the Government needs revenue let them impose a tax of ten cents a ton on all the coal used in the United States and Alaska will bear her part equally with the rest, but if you impose a royalty tax on coal produced in Alaska and not on coal produced elsewhere, we become merely tribute payers to the treasury. It is unequal and unjust.

I am not certain that a leasing bill may not be drawn that would be a workable and just law, but the Robinson Bill, now pending before Congress and advocated by Mr. Pinchot, is certainly not such a bill. Why, that bill in effect proposes to repeal the great law of supply and demand and have the price of coal mined in Alaska fixed by a bureau or commission at Washington. If the law of supply and demand could be ignored and the prices of commodities fixed by law, why, all this complaint about the high cost of living should be settled at once. Simply establish a lovely new bureau at Washington and let them fix the prices of everything and be done with it.

This Robinson Bill goes even further in interference with natural laws. It provides that no railroad shall own any coal mine or have any interest in any or any shareholder have any interest in coal. Now the coal cannot be mined or hauled without railroads and the only inference that can be drawn is that the law of gravitation was also to be suspended or repealed in relation to Alaska coal so that it would be transported in great quantities and to great distances without any railroads.

The stoppage of coal mining in Alaska has strangled the growth of the territory. The territory gained less than two per cent in the last ten years, while it gained nearly a hundred per cent in the preceding ten years. This hurts every individual in Alaska, either directly or indirectly.

To Mr. Pinchot and men like him, the Alaska coal question is one of only academic interest, but we in Alaska are intimately affected in our living, our prosperity, and in our hopes of comfort.

He and others go to Alaska, spend a few days or weeks of a summer's vacation and come back as a philanthropist and propose new ways to govern our affairs. Gentlemen, I want to say this, I believe no man is qualified to legislate upon a subject in relation to the welfare of a people except he is one of the people. (Applause.) If Mr. Pinchot lived in Alaska, or hunted for his living there, as the rest of us do; if he tried to carry on an enterprise there, or develop and establish a business in that territory, then his judgment would be valuable, his opinions could be weighed by others in a similar position and by argument, the accuracy and truth of his ideas ascertained.

But when he attempts to regulate our affairs as an academic matter, to strengthen his power over us for his own glory and satisfaction, it is inverting the true principles of government and we become a governed and subject people instead of a free and self-governing people.

British Columbia Law Admirable.

They talk of adopting the New Zealand coal land law for Alaska, or the British Columbia law. Gentlemen, they forget the main principles of these laws: That is the New Zealand coal land laws were made in New Zealand and made by the people affected. So were the British Columbia laws. They were not made in London, not even in Ottawa, but by the people of British Columbia themselves. And I want to say this: The British Columbia coal land law is an admirable law and if we had a similar law in Alaska we should now be selling coal to British Columbia instead of buying from them.

We can never have satisfactory laws in Alaska until they can be made by those who are directly affected by them. (Applause.)

If we must have a leasing law in Alaska, and I am prepared to agree to a leasing law or any other law that will open up the country, then the law should contain a provision that it should not be suspended or nullified by the President. It should further provide that if the agents in the land office refuse to accept applications

and the officers of the interior department neglect or refuse to administer the law, the citizen aggrieved may apply to the Courts in Alaska, not in Washington, to compel the land office to administer and carry out the law.

Why, this Pinchot and his propaganda have made the people of the United States think that the people of Alaska are all thieves and engaged in trying to steal the vast public lands there. A man on the train the other day on hearing I was from Alaska, said to me in great sincerity, "The Cunninghams and the Guggenheims have stolen about all there is in Alaska, haven't they?"

The Cunningham Case.

The Government has fifty odd thousand dollars of Cunningham's and his friends' money safely in the treasury at Washington now, and has given them no land at all for it. Cunningham and his friends have spent at least fifty thousand dollars more in developing, surveying and improving the lands they applied to purchase and the Government, according to the decision of the commissioner of the land office, keeps not only their money and the land, but their improvements as well. Fortunately for Cunningham and his friends, however, they have not been indicted. That is the result of their efforts to buy coal land from the Government. For injustice carried to the extent of cruelty, I know of no case in the history of the country to match the action of the Government in the Cunningham cases.

The Guggenheims with the Morgan house have built 200 miles of railroad from the coast up into the mountains of Alaska—one of the most difficult and expensive bits of railroad ever undertaken anywhere in the world. They got no subsidy and no aid, but the Government compels them to pay a license of \$20,000 per year for the privilege of operating the road. This is the equivalent of 5% on \$400,000, and is exactly the same in effect as if they had been compelled to pay that huge sum into the Treasury of the United States as a penalty for trying to develop the country with a railroad. And we need railroads in Alaska more than anything else. We need five thousand miles of railroad in Alaska to properly develop it, and then we would not have enough. We have actually less than five hundred miles and those burdened with a tax which is taken back to the treasury at Washington equal to the interest on \$2,000 per mile, and on top of it all they are charged with trying to gobble and steal the whole of Alaska.

How can the country develop against these conditions?

The land laws of British Columbia and of Canada have been referred to as an example to be followed in Alaska. It may be worth while to point out the fact that Canada spends a million dollars a year to advertise and encourage immigrants to settle and develop her vacant lands. The United States spends not a cent for Alaska.

The Canadian Government has now under construction a great trans-continental railroad more than 3,600 miles in length and costing over two hundred and fifty million dollars. In addition to this great trans-continental line, many other branch lines are subsidized and aided in various ways and the result is that not less than 250,000 settlers per year are being attracted to the Canadian provinces.

The United States Government spends not a cent to aid or encourage railroads in Alaska, but burdens them with \$2,000 a mile as a penalty. Though our lands will produce all that the Canadian lands produce and in addition contain incalculable stores of precious metals, we have made practically no gains in population in ten years.

Alaskan Problems.

BY HON. WALTER L. FISHER,
SECRETARY OF THE INTERIOR.

The public interest in the Alaskan situation is such that, with the consent of the President, I have concluded at your request to make at this time a candid, if somewhat informal, expression of the views I have formed as Secretary of the Interior, under whose official supervision much of the administration of the territory is now placed. Pressure of other matters imperatively requiring attention has prevented their presentation in as precise and comprehensive a form as I had hoped. This and the absence of the President from Washington has also prevented the submission to him of what I have prepared. I wish to say, however, that no one is more earnest than he in the desire to see a policy of prompt and wise development inaugurated in Alaska and that the general policy contained in this address has been discussed with him, meets his approval, and will have his support.

I have but recently returned from an altogether too brief but nevertheless a most interesting and profitable visit to those portions of Alaska which are more immediately involved in the questions now under public consideration. Favored by extraordinary weather and the co-operation of steamship and railroad lines and the assistance of all of the governmental agencies, including the revenue cutter service, I visited every port in Alaska which seems likely in the near future to become an important entrance to the country. I examined all of the harbor and town sites which for this purpose have attracted any considerable public attention. I traversed the entire length of each of the three railroads which have been constructed in the territory and made a short trip from White Horse down the upper Yukon. Both before and during the journey I examined a mass of books, records, and papers relating to the country and its resources. I had conferences with official committees representing the principal communities I visited and with numerous individuals, residents both of the coast and of the interior, and conferred with engineers, miners, prospectors, railroad officials, business and professional men.

I had the good fortune to have with me throughout the entire Alaska trip Alfred H. Brooks, geologist in charge of the Alaskan

division of the United States Geological Survey. For fourteen years Mr. Brooks has been studying Alaskan conditions on the ground; for nine years he has been in charge of the mineral division of the geological survey work there. I had arranged for Dr. J. A. Holmes, Director of the Bureau of Mines, to precede me to the Bering river coal field, which he examined thoroughly before joining me at Cordova. In the examination of the Bering River field Dr. Holmes was accompanied by L. T. Wolle, of Ohio, an engineer of large experience both in coal mining and railway construction; F. W. C. Whyte, of Montana, whose coal mining and railway experience has been extensive in the management for years of the coal developments and operations of the Anaconda Copper Co.; T. H. O'Brien, who for a number of years has been organizing and managing the coal operations of the Copper Queen, Stag Canon, and other companies in the Southwest; and George Watkins Evans, a coal-mining engineer of experience in the Northwest states, who had already made several professional examinations of the Bering River coal field. To these gentlemen, one and all, I am greatly indebted for the valuable service they have rendered in this connection: In his subsequent examination of the Matanuska coal field Dr. Holmes was accompanied by Mr. Whyte and Sumner S. Smith, who is a mining engineer and the inspector of mines for Alaska.

Alaskans Broad Minded.

At the very outset I wish to express the high opinion I formed of the remarkably large and fine body of people who have become permanent residents of Alaska. While there is unquestionably a considerable floating population of a character which does not add to the real strength or stability of the territory, there is a substantial percentage of vigorous, law-abiding, law-respecting men and women of the highest type of American citizenship, and I found that they possessed what is perhaps the highest form of moral courage—the ability and the willingness to look at both sides of the questions which affect their interests and to admit that they are wrong when once convinced that they have been led into a mistake of fact or of opinion. The total population is about 65,000, of which a little less than half are whites.

They are entitled to a territorial government better adapted to their peculiar local conditions and needs. The existing coal-land laws applicable to Alaska neither promote development nor protect the public, and all its coal fields are withdrawn from entry. Numerous claims under entries made or attempted to be made prior to

the withdrawal are pending in the department of the interior. Their investigation is now being pushed as rapidly as possible, and wherever indictments are not pending they will be decided as promptly as this can be done properly.

I found Alaska a country of wonderful scenic beauty, which in itself will in future years be one of its greatest financial assets. From all the information I could gather, I believe it to be a country of great mineral and agricultural possibilities; indeed, I should go further and say a country of great mineral and agricultural probabilities, needing development, ready for development, and inviting development, but held back chiefly by inadequate transportation facilities and inadequate laws.

Its present steamship lines are probably as good as could be expected, in view of the restricted commerce and the inadequate manner in which its coasts are marked and lighted. Its present roads are almost entirely those which have been built out of the meager appropriations made by Congress for this purpose. Travel by road or trail in Alaska is still generally of the roughest pioneer description. Its present railroads are incidents to the exploitation of its mineral resources.

One Real Railroad.

Aside from the White Pass & Yukon road there is only one real railroad in Alaska, and that is the Copper River & Northwestern Railroad, which leads from Cordova, on Prince William Sound, 200 miles up the Copper river, and its eastern tributary, the Chitina, to the Bonanza copper field, and is reported to have cost approximately \$20,000,000. The White Pass & Yukon Railroad is an excellent narrow-gauge road along the line of the historic trail which leads over the mountains and down the Yukon to the gold fields of the Klondike, but only a small part of this railroad is in the territory of the United States. The Alaska Central Railroad starts from Seward for the Matanuska coal fields and the Yukon, but stops, discouraged, 70 miles north of Seward. The present cry in Alaska and among those who are financially interested in Alaska is that development has been stopped by the withdrawal of the coal fields from entry. I am convinced that the coal withdrawals have exerted only an incidental influence upon the development of railroads in Alaska. If the coal fields had remained open to unrestricted private exploitation, railroad development might have been stimulated, but in that event the profits of the coal and not of the railroads would have been the incentive to construction.

We have already seen in this country the injurious effects of the joint or common ownership of coal fields and railroads, and we are now engaged in the attempt by drastic legislation to remedy the evils which the withdrawal of the coal fields of Alaska should prevent from recurring there. We should not repeat in Alaska or elsewhere the mistakes which have been made in the older portions of the United States. This does not mean that Alaskan coal should not be developed and developed at once. It means merely that it should be developed properly as well as promptly.

Alaskan coal is of great value, but its extent and character have been much exaggerated. There are great quantities of lignite and low-grade bituminous coal in several parts of the territory, but there are only two known fields of high-grade coal in Alaska. The better known of these two fields is the Bering river field, which is near Controller bay, and in which the Cunningham claims were located. It is the field about which the Alaskan controversy has been fiercest and most bitter. The Matanuska field is larger and may prove to be the more important. Both of these fields contain anthracite and high-grade bituminous coals. The question is how they shall be opened so as to promote development and protect the public interests. Before answering that question it is necessary to consider the general conditions which now exist and the real end which we wish to attain. Alaskan coal can be opened so as to enable a larger or smaller number of individuals or groups of individuals to make money out of their development, bringing with this development considerable incidental benefit to the community as a whole through the expenditure of money and the employment of men, or it can be opened on terms which will offer to the operator a sufficient profit to furnish an adequate incentive for his investment and his efforts, but which will result in placing the coal upon the market at the cheapest price consistent with this incentive, conferring upon the community the manifold advantages of cheap fuel and of the development of the many forms of industrial enterprise which cheap fuel renders possible.

I think there can be no room for doubt that the second of these objects is the one to be attained. If, however, Alaskan coal is to be mined and sold under any plan, it is important to know what is likely to be the present and future market. There is at present on the Pacific coast no available anthracite except that in Alaska. It would be natural, therefore, to expect an immediate demand for this particular kind of coal. There is little high-grade bituminous coal on either the eastern or western border of the Pacific, and

it would be natural to expect a considerable demand for coal of this character. There is little, if any, high-grade coking coal on the Pacific unless in Alaska, and there is an immediate demand for a certain amount of coking coal for smelting copper and other ores. There is, of course, a certain present limited demand in Alaska for coal for steaming purposes. The amount used for all purposes during the last fiscal year was 116,000 tons. Except for coking use, it is clear, however, that Alaska coal must now contend with serious competition. There are considerable quantities of lignite and low-grade bituminous coal throughout the lower Pacific northwest and in British Columbia. Much of the bituminous coals are of fair quality. When freight and handling charges are taken into consideration it is clear that for steaming purposes the coal of British Columbia and of the northwestern states will hold everything but the Alaskan market itself against competition from any of the Alaskan coals except that of the very highest grade, and coal of this quality can expect to win only where special considerations control.

Oil Supplanting Coal.

For ordinary heating and steaming purposes it is always possible for low-grade coal at lower prices to control the market. But for these purposes the most serious competitor of Alaska coal is California oil, which is already supplanting coal in many fields and possesses advantages in economy and convenience of handling. The most reliable estimate as to the life of the California oil fields of which I have any knowledge is that they will be an active competitor for the entire heat-producing market for the next 50 years. Oil has already supplanted coal on many of the western railroads, and is now being installed in the railroads and steamships of Alaska and the Pacific coast. Whether it will be possible for Alaska coal to compete with it, once the necessary changes in the boiler equipment have been made, is exceedingly doubtful. Oil, however, is a less dangerous competitor in smelting and in making steel. It is not now used for either of these purposes, except experimentally.

Vast deposits of copper are already known to exist in Alaska, and smelters will undoubtedly be established in that country as well as farther south upon the Pacific coast. Some iron exists in the Pacific states, and there are numerous indications of its presence in Alaska, although commercial development there is as yet practically negligible. My own judgment is that the present market for Alaskan coal is limited and uncertain, but that the demand will rapidly increase as the country is developed. There are now the local needs of a comparatively small population and compara-

tively few industrial enterprises. There is also some demand for high-grade coal on the lower Pacific coast which Alaska alone can furnish and supply.

If mines are opened there should be, and in my opinion there will be, immediately established on Prince William Sound one or more smelters capable of smelting the copper ores which are now being mined and of taking care of the development of this ore which seems sure to come in the early future. There will be at some time a demand for coke for making steel; and if adequate transportation facilities are furnished so as to permit of the development of the iron and other minerals which probably exist in the country there will be an increasing demand for coke for these and for the ores of the lower Pacific. After all, however, important as these needs and opportunities are, it seems reasonably clear that Alaskan coal will not dominate the coal market of the Pacific coast as it was confidently thought it would when the fields were first discovered. That this is true will be apparent upon a further consideration of the physical condition of the coal fields and of the coal itself. I personally visited the Bering field and examined some of its coal veins and coal mines. It is located along the foot of the Chugach mountains, in the region a little south of Prince William Sound and some 1,200 miles from Seattle. The fields cover an area of 50 square miles or 32,000 acres, lying approximately 25 miles from the coast at Controller bay with an immense glacier, known as the Bering glacier, on the east from which the Bering River runs and empties into Controller bay. This field was discovered in 1896 and practically all of it appears to have been covered by claims entered under the law of 1904. The country is exceedingly rough and broken and the rocks are faulted and folded to an extraordinary degree.

Difficult to Determine Condition of Coal Beds.

In addition to the titanic upheavals which must have occurred at this point, the stratification has slid or moved within itself in such a way as to crush the large portion of the coal beds in this field, leaving what otherwise would have been the highest grade of bituminous coal so that much of it cannot be mined as lump coal, but only in a finely crushed condition. There is, however, some coal in the field which doubtless can be mined as lump, but how much there is of this coal remains a question of considerable doubt. This doubt is further intensified by the fact that in the crushing process the coal beds have become pinched so that beds of considerable thickness at one point become thin or even pinched out

within a short distance, making it difficult to determine what will be the condition of the beds at any given point beyond the explored area. All of these conditions will add materially to the cost of mining, which will be further increased by the fact that the coal itself can not be relied upon to support the roof of the mine and that timbering will have to be resorted to to an unusual extent. Although the local timber is of poor quality, it will probably answer for ordinary mining purposes, but the cost of labor will be high. Aside from its crushed condition, much of the coal itself is of excellent quality, possessing high thermal value. The crushed condition does not interfere with its coking quality if otherwise good. Although it can be briquetted, or with the use of specially constructed furnaces it can be burned successfully in its present form, its physical condition will undoubtedly interfere with its immediate commercial value. The erection of smelters on Prince William Sound will cause an immediate demand for this coal, as the first smelters will probably be erected at or near Cordova, which is the tidewater terminal of the Copper River and Northwestern Railroad, which now taps the principal copper field of the territory.

One of the pressing needs of the territory is the construction of such smelters at which the copper ore especially can be smelted without the labor and expense of transporting the ore the enormous distance now necessary for this purpose. The main purpose and practically the only present use of the extensive railroad from Cordova up the Copper river is the transportation of the ore from the so-called Bonanza copper field in which the Morgan-Guggenheim syndicate, which owns this railroad, already has extensive interests. No smelter, however, has as yet been constructed, and none would be profitable until the coal and the copper can be brought together. Once the Bering coal fields are open the transportation problem becomes in this, as in other respects, the most important problem upon the solution of which future development will depend. The enormous expense of railroad construction through the mountainous and glacier-covered territory makes it practically certain that the Copper River Railroad will remain the natural distributor for any of this coal for which there may be a demand in the interior of the particular district in which it is located. I think it may be assumed, not only from the statements made to me by its officials but also from the very nature of the case, that the people interested in this road will construct smelting works at Cordova as soon as Alaskan coal is available

for its use. Smelters at Cordova would be able to take care of the copper ores, of which there are many indications throughout the entire district tributary to Prince William Sound.

The exploitation and commercial development of these ores would promptly follow the construction and operation of such smelters. Representatives of the Copper River Railroad state that they will immediately construct a branch line to the Bering coal fields as soon as they are opened to development. Under these circumstances it is natural to inquire what, if any, advantages there would be in the construction of another railroad from tidewater to these fields. The answer to the question depends largely upon the extent to which the Government will be able to regulate the service and the rates of the Copper river road. Such regulation, however, should be comparatively simple and effective, especially if we insist upon keeping the railroad or its owners from acquiring a controlling interest in the coal fields. That this can be done by a proper system of leasehold I see no reason to doubt. Representatives of the railroad have assured me that its owners recognize and intend to accept in good faith, so far as the coal fields are concerned, the principle upon which public opinion and the law now insist in the States and will undoubtedly insist in Alaska—the principle that transportation lines should not be interested, directly or indirectly, in the commodities which they transport. Whatever may be thought of such assurances, the law itself should divorce the railroads from the coal business, so that all the lessees of coal lands may receive impartial service from the roads and the incentive to favoritism may be removed. If this can successfully be accomplished, it is apparent that a competitive railroad will simply divide the profits of transportation, which are now not adequate to pay the cost of operation, and whose future can not be foretold with any certainty because of the doubts as to the future market for the coal to which reference has already been made.

Controller Bay Poor Harbor.

There is, however, abundant opportunity for competitive roads if they should ever become desirable. Not only is there room at or near Cordova for competitive terminals, but there is ample frontage reserve for a Government railroad if one should ever be desired. The harbor at Cordova is so clearly superior in all respects to any other harbor available for the Bering coal fields that the slightly longer transportation necessary by this route appears entirely unimportant, especially as the grade is practically a water grade to the coal fields. Nevertheless, there is a possible harbor, although a

poor and expensive one, available at Controller bay. This much discussed bay, tempest tossed by controversy as well as by nature, is inclosed partly by rocky remnants of the hills and partly by low reefs built up of mud brought down by glacial streams and raised above the water surface by action of the waves. The bay itself is gradually being silted up by similar material from the same extensive glaciers which border the coal fields on the north and east and probably cover many beds of coal. These long, low reefs and flats, together with the rocky islands of Kayak and Wingham on the southwest, protect its waters from the open sea. The area from the base of the coal-bearing mountains on the north, along the east side of Bering river, to the bay, a distance of 15 to 20 miles, is a low-lying plain but a few feet above water level, much of it flat and swampy, built up of glacial debris.

The entire bay is shallow except a narrow, irregular channel from a few hundred yards to a mile in width and a few fathoms in depth leading southward and westward to the sea. The tidal currents passing into and out of this bay diminish the settling of glacial silt in this channel, but these do not appear to prevent the silting up of the larger part of the bay itself; and doubtless the channel is slowly but continuously becoming smaller and more shallow. This channel lies from 2 to 3 miles out from the present shore, with these shallow mud flats intervening. Of course, whether and how rapidly the large quantities of silt brought down from the glaciers will continue to fill up the waters of Controller Bay can only be determined by careful and protracted observation, but there is every reason for believing that this process will continue in the future as it has done in the past unless the conditions are improved by artificial construction and dredging.

I should add, however, that some persons insist that the future deposits brought down by the Bering river will in no appreciable way affect the navigability of the bay; and that the conditions can be easily improved by dredging. As the Controller bay region is only 20 to 30 miles distant from the coal fields, there have naturally been numerous investigations to determine the possibility of constructing harbor facilities there. I am told that it was carefully investigated on behalf of the Copper River Railroad by engineers of high standing and was discarded as impracticable. The attempt, however, was made under the advice of engineers of this road to construct a harbor at Katalla, which is outside of the range of islands to the westward of Controller bay, where there is deep water immediately off shore and where a pier or breakwater was

constructed at considerable expense in the vain attempt to protect shipping from the force of the winds and waves of an open roadstead. A storm promptly demolished these works and led to the removal of the railroad to Cordova. Its representatives say they would not now construct a harbor at Controller bay even if they should become interested in a railroad to the coal fields, and give as an added reason the necessary duplication of dock facilities which they are now constructing at Cordova.

Obviously, if modern dockage is provided at Cordova for copper ore and other heavy freight, it can be made to provide for coal with less additional expense than if separate facilities should be constructed on Controller bay. Nevertheless, several other railroad enterprises have been projected at Controller bay, but apparently all have become inactive except that in which R. S. Ryan and his associates are interested. It was the persistence of Mr. Ryan which led to the elimination of the shore of Controller bay from the Chugach National Forest, and he has made three scrip entries on the shore, which are still pending before the department of the interior. Following the law, these entries each have a frontage of 160 rods, leaving 80-rod intervals between them, which the law provides shall be kept free from entry. On one of these 80-rod strips a railroad terminal has been located, but this entry appears to be without any warrant of law and is based wholly upon the theory that a railroad-terminal location does not constitute an entry within the meaning of the act. It seems to have been made merely to exclude others and upon the chance that the statute may be open to the construction mentioned. I do not believe that it is even intended to be seriously pushed. At all events, all the rest of the shore, except as stated, remains free from entry, thus disposing effectively of the claim that a railroad monopoly has acquired the frontage of Controller bay. Whatever may be the merits or demerits of this harbor, it has not passed out of the control of the Government.

To develop it at all it will be necessary to construct piers or roadways from the shore out over the shallow flats to the channel I have described; and after the elimination from the national forest Ryan secured from Congress, without apparent objection from any source, a special act containing many provisions for the protection of the public interests, permitting him to construct a pier with dockage facilities where it reaches the deeper water. Here, 3 miles from the shore, he proposes to create a harbor. Similar facilities can be created at other points along the shore if this

should be desired, and by dredging, a certain amount of which Mr. Ryan admits he will have to do, facilities equally advantageous with his can apparently be created, if desired. Ice from the Bering river and other small streams forms in winter and collects in the shallow waters of Controller Bay. Some of those familiar with Alaskan conditions, whose opinions are entitled to weight, regard this ice as a menace to the harbor, but the greatest disadvantage, aside from the shallow waters, appears to be conceded to be the fierce winds which sweep down over the bay from the glaciated regions on shore. Under somewhat similar conditions elsewhere, shipping is said to be actually blown from the docks in extreme cases; and if winds of this character should blow while vessels were attempting to enter Controller bay the danger would be great.

Mr. Ryan has recognized the difficulties and thinks they can be met, at least so far as the docks are concerned, by constructing them so that ships will dock with their bows directly facing the prevailing winds. The plans which he has recently prepared are so drawn. That such precautions are necessary even in his judgment is a sufficient indication of the importance of this particular problem. If he should really construct a road and extend it from the coal fields to a connection with the Copper River Railroad, copper ore might be diverted either by enforced or voluntary switching arrangements to smelters established in the coal fields themselves or at Controller Bay, but these smelters would not possibly be as available for the copper ores of Prince William Sound as would smelters at Cordova. For the reasons which I have thus indicated, I am unable to see how a railroad at Controller bay would be of any particular advantage to the Alaska syndicate and if a real competitive railroad should be built, it would serve as a check upon the Copper River road. If, on the other hand, a Government railroad is desirable now or in the future, there is ample opportunity for it. If the Ryan railroad should be built and the Government desired its acquisition, the opportunity for the Government to build a competitive road should be effective in preventing an exorbitant price.

Proper Coal Laws Essential.

However, under the conditions which exist, including the character of the Bering coal fields, the present state, and the immediate future of the coal market, and the fact that the Copper River Railroad is already in the field, I see no reason why the Government should at this time take upon itself the unnecessary financial risks of supplying transportation. If railroad rates and service can ever

be effectively regulated, this can be done in the case of a railroad carrying but a single commodity between fixed points, as would be the case with the Ryan railroad, or carrying but few commodities and those chiefly in bulk, as is now the case with the Copper River Railroad, and is likely to be the case with it for many years to come. While I am an optimist as to the future of Alaska, I see no reason why the Alaska syndicate should not be permitted to continue the enormously expensive experiment to which its present investment has already committed it and which that investment prevents it from abandoning. The essential thing is that we shall adopt proper coal laws under which monopoly will be impossible and that we shall preserve ample opportunities for whatever action by the Government the future may require. The immediately important thing is that the Bering coal field should be open to wise development so that it may supply local needs and afford ample opportunity for supplying any market for this particular coal which may now exist or which it may be possible to create on the Pacific coast.

My visit to Alaska has led me to take a far greater interest in the future of the Matanuska coal field, which is larger in extent, having an area of 74 square miles or 47,360 acres, better in coal, better in physical condition, and freer from the complications of private claims than is true at Bering river. Against these advantages must be set off its greater distance from the sea, but this very distance connects it more intimately with the real problem of Alaskan development—that of adequate transportation from tide water to the Yukon. What Alaska needs more than all else is a trunk line railroad from the ocean to the great interior valleys of the Yukon and the Tanana, opening up the country so that its future development may really be possible. Today, as I have said, Alaska is a country of large probabilities, minerally and agriculturally. Mineral resources of great variety and extent are indicated by such surface exploration as is possible. The real value of these mineral indications, however, can not be effectively determined while the cost of transporting even the simplest of mining machinery into the interior is practically prohibitive and can be justified only as a gigantic gamble by men of sufficient means to pocket their losses. The vast interior valleys are covered with luxuriant grasses and can be made to raise cattle and sheep and even grain if proper seed and proper methods are experimentally developed by scientific agriculture. But agricultural development can

not go forward where the local markets are small and scattered and exportation is impossible.

The Matanuska Field.

The Matanuska coal field lies north of Prince William Sound and from 150 to 200 miles from Seward, on Resurrection bay. It is known to contain extensive beds of coal of the same or slightly superior quality to that of Bering river, and in better physical condition both as to the coal itself and as to the obstacles to profitable mining. The country is not so broken, faults and pinching are less in evidence, and the crushing process appears to have gone on to a much less extent. A far less percentage of the field has been entered by private claimants, and most of these appear to be clearly illegal on account of dummy entries and other violations of the law, for which indictments are now pending. A railroad to develop this field and to open up the great interior valleys has been started from Seward, which has by far the best harbor and the best town site in Alaska which I saw or of which I have been able to obtain any knowledge. The town of Seward lies at the head of Resurrection bay, which is a magnificent and extensive harbor, landlocked and free from ice, and already selected by the Government as a naval coaling station, and where smelter operations may be one of the future industries.

The only criticism of the harbor of which I have heard is that the water is so deep that docks and fixed moorings will be necessary for perfect safety, but as this is also true of the harbor of Seattle, which has been regarded as one of the most magnificent in the world, it seems to be a fault which closely approaches a virtue. The railroad from Seward—the so-called Alaskan Central or Alaskan Northern—at present extends only seventy-odd miles to a point on Turnagain Arm, where it stopped for lack of funds and for various other reasons, among which the withdrawal of the coal fields from entry is particularly emphasized. I think, however, that its financial plans afford a more convincing reason for its failure: At all events, it has passed through the courts into the custody of its bondholders, who are not particularly eager, if they are able, to finance its further extension. While a part of its construction does not seem wisely adapted to the transportation of coal or other heavy freight, I believe this road should be continued on to the coal fields and beyond them to the interior, and that if private interests do not care to undertake the task the Government itself should do so. The situation here is not like that in the Copper River country. No large financial interests are back of the

railroad; no large investments have been made which it will be necessary for private interests to protect.

Such a railroad as I have suggested will pass through a country which appears to have large agricultural possibilities as well as great mineral resources. These possibilities and resources, however, will require time for their development. The adoption of a leasing policy will take away from the promoters of such a road the lure of great gain from the exploitation of the coal fields. This exploitation clearly should be prevented in the public interest. But at the same time, the Government must recognize that if it withdraws from private capital this incentive for railroad construction the Government itself must assume the obligation of making possible that kind of development upon which it insists for the general good. It has been urged that the Government should meet this objection by guaranteeing the payment of bonds or the interest on bonds equal to the cost of the construction of the road. I can see no advantage whatever in this policy. If the Government is to guarantee the cost of construction, I see no reason why the Government should not own the road outright, whether it operates it or leases to an operating company.

Trunk Line to Yukon Imperative Need.

If a plan for construction at the joint risk and joint profit of the private investor and of the public along the lines of the Chicago traction ordinances could be put into successful operation, this might reconcile the conflicting views of public policy as to the Government ownership of railroads, especially if the Government's share of any future profits should be commuted into an equivalent reduction of the rates or should be directly expended in furnishing to Alaska the other means of transportation of which it is and will continue to be so much in need. After such careful consideration, however, as I have been able to give to the matter, I believe that the uncertainty of immediate financial return will prevent the adoption of this plan and that the imperative need of immediate transportation development calls for the construction of at least one main trunk line from tidewater to the Yukon, which can better be constructed from Resurrection bay through the Matanuska coal fields than in any other way. There seems to be no likelihood that the Copper River Railroad will be extended into the interior for years to come, and even then its route would probably be far removed from the line I have suggested.

The Matanuska coal should be brought to Seward for the use of our naval coaling station, and a mine for that purpose can well

be opened by the Government on the Matanuska, where it can be made to serve as an example for private mining, where it can furnish information and serve as a check upon the profits of the lessees under Government leases. The Secretary of the Navy authorizes me to state that he believes there should be reserved a sufficient portion of high-grade Alaska coal, suitable for the use of the navy, to be mined hereafter for this express purpose under the Bureau of Mines. The navy department is now conducting a test of the available coals in the Pacific coast states with the result that none of these coals have been found suitable for naval uses. It is the intention to test additional coals from New Mexico and Wyoming.

I have made some inquiries to ascertain whether the present owners of the Alaska Central are willing to give any assurances that they will extend that railroad through the coal fields to the interior in the near future, with the result that some at least of those interested in it have indicated a preference to sell the railroad to the Government for the face of the outstanding bonds, which amount to some \$4,600,000. I assume that it can be purchased for the real value of the road, whatever that may be, and that it will not be extended by its present owners.

In undertaking railroad construction there is ample precedent at Panama, and it must always be borne in mind that as a matter of principle the Government is not thus invading the legitimate domain of private enterprise, but is in effect simply resuming one of its proper functions. The Supreme Court of the United States said in *United States vs. Joint Traffic Association* (171 U. S., 505-570): "The business of a railroad carrier is of a public nature, and in performing it the carrier is also performing, to a certain extent, a function of government." In *Talcott vs. Pine Grove* (23 Federal Cases, 652), the United States Circuit Court for the West Division of Michigan, said that railway corporations "exercise delegated sovereign rights" and are "but a portion of the public Government. * * * And it is not true, we submit, that it is in degree only that these franchises differ in their relations to the public from mills and inns, as is said in *People vs. Salem*. The one is private property; the other is a political function, which, when resting in the hands of government where originally it resided, or delegated still for the same public use, to either persons or corporations, ever has been, and of right may be, aided by taxation. * * * It is for the performance and regulation of this old and familiar governmental duty, in a mode deemed by the legislature most efficient and economical, that in modern times railway

and other corporations have been created. And in the most plenary and critical sense, under the general railroad law of Michigan, they are parts of the political organism. The road, once constructed, is, instanter and by mere force of the grant and law, embodied in the governmental agencies of the state and dedicated to public use. All and singular its cars, engines, rights of ways, and property of every description, real, personal, and mixed, are but a trust fund for the political power, like the functions of a public office."

Indeed, the most important features of our railroad law are squarely based and depend upon this theory of the relation of railroads to the functions of government. What has happened, then, with respect to railroads is simply that the Government has delegated one of its own functions to private agencies for what, at the time, are believed to be considerations of wise expediency. If, for reasons of equal expediency, the Government decides at any given time or place to resume its true function, it cannot be said to be in any sense invading the field of private enterprise.

If we may assume that some of the coal claims which have been entered in Alaska in either the Matanuska or the Bering fields have complied with the law and should be allowed, the suggestions I have made will enable us to compare in practical operation the development of coal under private ownership; under Government leasehold, and under the direct operation of the Government itself. We shall have an important railroad under private ownership, with governmental regulation, to compare with one under public ownership, and these two railroads will operate in separate fields where they will not directly conflict, but where each may serve as a check upon the other, and the advocates of both methods will doubtless come to appreciate more fully and more fairly both the difficulties and the advantages of the railroad as a governmental agent.

Methods of Opening Coal Fields.

It remains only to consider more in detail the methods by which the coal fields should be opened. Those suggested have been the sale of the lands in fee, their development under lease from the Government, and their operation by the Government itself. I believe that the time has passed when the Government should convey an unrestricted title to its coal fields. The day is done in which the Government should deliberately encourage the unrestricted private exploitation of the sources of power. To impose effective regulations upon these sources after they have passed to private

individuals in fee is exceedingly difficult, even if not impossible. The ownership of the fee carries with it under the law the right of unrestricted sale, and many regulations which are desirable in the public interest can be imposed, if at all, only after radical changes in the laws and prolonged litigation in the courts, perhaps only after constitutional amendments. It is therefore unwise, and in my opinion unnecessary, to sell our coal lands in order to secure their effective development.

On the other hand, direct Government operation, including the mining and the selling of coal, involves such deep and far-reaching changes, both of policy and of administration, that there is no likelihood at the present time of its adoption to the exclusion of private operation. Unlike the Government ownership of railroads, public coal mining has never been held by the courts to be a function of government. It would be regarded by many sincere and disinterested citizens as an invasion of the field of private enterprise, and would involve such general and uncompromising opposition that even those who believe in its adoption as a matter of principle should not insist upon tying up the coal fields of Alaska until the great economic and political questions which are involved in its exclusive application to these fields have been fought out to a practical conclusion. The true function of government is not merely the preservation of public order or the regulation of the conduct of individuals, but the carrying on of any enterprise which will promote the welfare of the community as a whole more effectively if carried on by the organized community than if left to the voluntary action of individual members of the community. But to determine whether a particular activity answers this test depends in every instance on a final and complete analysis involving a consideration not only of immediate results, but of the far-reaching consequences upon humanity and upon the social order. While, therefore, much can be said in favor of permitting the Government to enter experimentally into those fields upon which industrial development and the welfare of society depends, which perhaps may in the future include the development and distribution of power and the means by which power may be created, I do not believe that the Government alone should preempt these fields or exclusively control their development until it becomes far clearer than it is today that their development by private enterprise cannot be effectively controlled. For this reason I am opposed to the policy of having the Government alone own and mine Alaskan coal.

I believe that the leasing system avoids the controversies and the difficulties of both extremes of public and of private ownership. It has been adopted with conspicuous success in the great mining communities of Australia and New Zealand. It is now the established law of the Yukon territory lying in Canada just across the border line from Alaska. It is the system under which much of the privately owned coal land of the United States is in fact today being developed. Under it we can insert as matters of contract and as conditions to which the lessee voluntarily consents those regulations and requirements which promote the public interest, the enforcement of some of which by mandatory law might be unconstitutional. By making the terms of our leases liberal we can make them even more attractive to capital than if we adopt the policy of an outright sale of the fee.

Outright Sale of Coal Lands.

Let us consider for a moment what ordinarily happens with coal land which is sold outright. Comparatively little of it is mined by the original purchaser. He usually disposes of his title to a succession of others, each of whom in turn adds to the cost of his purchase the profit in consideration of which he sells, and with increasing frequency the final result is the operation of the coal mines by a lessee, who must pay a return on these accumulated profits and who adds his own, transferring the burden of it all to the consumer. One hundred and fifty-six million tons of coal, or 34% of the total production of the United States for the year 1909, were mined from lands operated under private leases, and these leases are common in every coal-mining state, naturally much more so in some states than in others. Considering the areas involved, we find that in West Virginia, in the great Pocahontas and New River coal fields, which yield the finest steaming coals of the continent, about 90% of the area in the Pocahontas district and about 60% of that in the New River district are mined on a private-lease basis, which pays the lessor a royalty fee averaging 10 cents per ton.

In the Southern Appalachian coal fields, just south of the Pocahontas region, it is estimated that 75% of the area is mined on a lease basis; in the Hocking Valley region of Ohio, 75%; in Iowa, more than 70%; in Arkansas, 60%; and in Oklahoma, nearly all of the coal land is operated on a lease basis.

Thirty Per Cent of Coal Land Leased.

Taking all of our principal coal-mining states, the census figures for 1909 show that out of a total of 6,900,000 acres of coal lands under operation, more than 2,000,000 acres, or 30% of the whole,

was in 1909 operated under a system of private leases. It is therefore substantially correct to say that, whether we like it or not, the choice is not as to whether we shall mine our coal on the leasehold system, but whether we shall mine it under leases from private owners or from the Government direct. That the consumer has everything to gain under the governmental leasehold must be apparent, for the Government can make its royalties as little as it chooses and it has no invested capital and no unearned increment on which to pay returns. Opposition is to be expected only from those who wish to secure our coal lands for stock jobbing or speculative purposes or so that they may make a greater profit than is essential to secure immediate development. Indeed, immediate development can be assured only under the leasehold system. Without it there is no reason why private individuals should not secure the property and hold it out of development until they can take advantage of the increasing demands of the future. Expedients could be adopted in the effort to enforce development by requiring the purchaser to mine a certain amount of coal or to expend a certain amount of money in developing the land under pain of forfeiting his title to the Government, but this, after all, is only a crude and awkward device for securing what can be far more effectively secured by means of lease. Indeed, these devices are economically unsound, for they compel development whether the immediate market justifies it or not. The leasing system, upon the other hand, can be given much of the flexibility necessary for meeting automatically the fluctuating demands of the market.

The opponents of the leasing system delight to dwell upon the fact that in the first half of the last century the Federal Government undertook to lease the lead mines on the public domain and that the effort was not a success and was abandoned in 1847, but when we consider the conditions under which the attempt was made, and especially that the leases were limited to five years, with a royalty of one-sixth of the lead for Government use; that the validity of the leases was constantly attacked upon the ground that the statute did not contain the necessary provisions for carrying it into effect; and that the system was permeated with the same kind of fraud and evasion which until recently characterized the operation of certain of our later land and mineral laws, we can understand the failure and that the experiment is of no value whatever in determining the merits or demerits of a properly drawn and properly enforced law for the leasing of the public coal lands of today. The whole experiment was carried on under such crude and inefficient

methods that the total rental received by the Government for the four years ending with 1844 was only \$6,354.74, while the expenses for the same period amounted to \$26,111.11.

A few persons who have expressed themselves as being "unalterably opposed" to a leasing system for the coal lands of Alaska have stated that they were unalterably opposed to it because, in the first place, it would be impossible to get any leasing legislation through Congress; and in the second place, if a leasing bill did pass Congress, it would be impossible to get anybody to work coal lands on a lease basis. I need not discuss at this time what Congress may or may not do, except to say that, in my judgment, Congress is far more likely to pass a rational leasing measure than it is to throw the coal fields of Alaska open for unrestricted private exploitation.

Practicability of Leasing System.

As to the second of these objections, whether or not the leasing of the coal lands in Alaska is a practicable proposition, let us see what the experience has been with reference to such a proposition in our own and other countries. A similar objection was raised when it was proposed to lease the coal lands in New Zealand and in the Australian States, such as New South Wales, West Australia, Queensland, Victoria, and Tasmania. In each of these far-away countries the local conditions in some respects resembled those in Alaska. They were remote from commercial centers, with meager or no transportation facilities, and industrial development was carried on under great difficulties. It was argued in each of these countries that the great need was capital and development, and that the coal fields should be thrown wide open to all who were willing to risk their capital in helping to open up and build up the country. In some cases the sale of the fee was tried; but the wise Anglo-Saxons of that region thought it better as a matter of national policy to keep the ultimate control of these essential resources in the hands of the State, and they adopted a leasing system as the only safe means of doing this. And what was the result? The coal lands in each of these countries have been taken up and are being developed and mined under the leasing system; and under that system coal is not only being mined for home consumption, but it is being exported to our own Pacific coast, and to other countries bordering on the Pacific. The difficulties that stood in the way of leasing the coal lands in those countries were imaginary difficulties, and they disappeared when the matter was put to a practical test.

Again, in Nova Scotia and in the far-away Yukon country, where the conditions for investment are even more unfavorable than they are in many parts of Alaska, those who were opposed to the adoption of a leasing system said that it would be impossible to lease public coal lands on any basis; but when the experiment was tried, parties came forward to take out the leases and are operating the coal lands.

In our own country, in the states of Wyoming and Colorado, when it was proposed that these states should lease their coal lands instead of selling them outright, it was argued that nobody would take out the leases. But experience has shown otherwise. In Colorado in 1900, in addition to the large acreage of coal lands held in private ownership, nearly 6,000 acres of state coal lands were operated under lease, and in 1910 nearly 20,000 acres of the state coal lands were being operated under such leases, with a royalty charge of 10 cents per ton. In Wyoming today more than 3,000,000 acres of state lands of all kinds are being operated under 5,700 leases. While only a small portion of this acreage relates to coal, the state statistics do not indicate what this proportion is.

With records at hand giving the results of a large volume and great variety of experience covering the operations of both private and public coal-land leases in our own and many other countries, it should not be difficult to decide upon the ordinary conditions and requirements that should be incorporated in a leasing system for the Alaskan coal fields—working conditions that will meet the legitimate demands of the prospector, the investor, and the operator, safeguard the health and life of the mine worker and the property of the Government, to the end that the public may secure an adequate supply of fuel at the lowest cost consistent with these conditions.

Price Regulation by Government Unwise.

Some of the bills which have been recently introduced in Congress provide that the Interstate Commerce Commission shall regulate the prices at which the coal mined under these leases is sold not only by the miner but by the middleman and the retailer to the consumer. Important as is the question of protecting the consumer, it seems unwise that price regulation by the Government should be insisted upon as a necessary feature of a coal-leasing law for Alaska. Obviously such regulation must extend to the retailer if it is to do anything but enable the middleman to make the profit denied to the miner. Regulation of this sort would be a new departure in either state or federal administration. It raises

fundamental questions of public policy about which differences exist that are as yet uncompromising. It would doubtless prevent any early action by Congress. Certainly if enacted in the form presented in these bills, which merely declare the general principle and leave all of the real difficulties to be worked out by the commission and the courts, it would prove a serious, if not prohibitive, barrier to the development of a new country and a new and uncertain market. Under these conditions it would seem a sufficient undertaking to inaugurate a new system of tenure, without imposing upon Alaska the additional difficulties of the administration of a hitherto untried attempt to settle by public regulation what would constitute a reasonable profit for the miner, the wholesaler, and the retailer of coal. It is especially hard to understand how those who doubt the success of railroad regulation in Alaska can now advocate entering the more difficult field of the regulation of commodities. Price regulation has been suggested by some representatives of large corporate interests as a safeguard under which the modern economic tendency toward consolidation might be safely permitted to continue, but the bills referred to do not propose to treat Alaska coal on the principle of a regulated private monopoly. This question should be left for more mature consideration as a question of broad general policy, applicable, if at all, to the states as well as to Alaska.

It may be practicable to provide in connection with the renewal of leases at their termination that such renewals shall be subject to the then existing laws applicable thereto. This principle has been successfully adopted in the Australian leases. Our first leases can well be made more favorable than those which follow, and if they are for reasonable but fixed periods, and if we lease only as much of our coal lands as may be required for the existing market and its effective extension, we can thus proceed experimentally, correcting early mistakes and meeting future conditions as they arise.

The prime requisites of a leasing system are that only sufficient coal lands should be leased to meet the existing market and encourage its development; that the quantity leased to any one lessee should be limited to the amount that can be profitably mined as a unit and yet be large enough to attract investors; that the lessee shall pay his royalty as he mines his coal; that this shall annually amount to at least a fixed minimum which will make it unprofitable for him to hold the land without production; that he shall mine his coal without unnecessary waste and with due regard to the health

and safety of his employes; that he shall not engage directly or indirectly in any combinations, agreements, or understandings to control the price of coal, and that the revenues derived by the Government shall not be used as a source of federal revenue or as a substitute for taxation, but shall be devoted to the development of the state or territory in which the coal is mined. These at least are the principal features which should be embodied in a leasing law.

Australia and New Zealand Favor Leases.

From the information which I have at hand, I infer that in Australia and New Zealand the quantity embraced within a single lease does not seem to be limited, but reliance is placed upon the requirements which make it unprofitable for a tenant to lease more land than he really develops. That both the Government and the coal operators are believers in the leasing system is apparent from its universal application and from the investigation made in 1907 and 1908 at the instance of President Roosevelt by Arthur C. Veatch, of the Geological Survey. With regard to the conditions in Western Australia, he says:

At Kalgoorlie I found the mining men unanimous and emphatic in the indorsement of the statement that the leasing system is a better method of promoting mining development than freehold. The views of Mr. Richard Hamilton, President of the Chamber of Mines and Manager of the Great Boulder Proprietary Co. mine, one of the richest gold mines of the world, carry great weight, as they represent the views of a man who is not only a mining engineer, but a lawyer, a man with wide experience, and one who speaks only after careful consideration, and then with mature judgment. Man after man in the field said: "See Hamilton; he knows what we think; he knows the conditions; and what he tells you may be taken as the opinion of the mining men of this country." Mr. Hamilton has spent considerable time in America in studying our mining conditions, and is emphatic in the belief that mining development is promoted more by the western Australian leasehold system than by the American freehold.

In view of these facts one may confidently assert that the mining law of Western Australia is, with minor exceptions, regarded as quite satisfactory by the mining interests of the country, and that in the opinion of the mining men development is promoted more by a leasehold than a freehold tenure. * * *

1. In Western Australia the population is largely made up of those interested in mining.

2. Western Australia is a country of great mineral wealth, having produced in each of the last eight years between 1,500,000 and 2,000,000 ounces of fine gold, or several times that produced by Alaska, and has for the same period had a greater total annual mineral production than any of the other Australian States or New Zealand, except New South Wales, which surpassed it in 1906 and 1907.

3. It contains enormous areas yet undeveloped, the state having an area of almost a million square miles, or more than the combined areas of California, Oregon, Washington, Nevada, Idaho, Utah, Colorado, Wyoming, and Montana, and a total population of less than one-twentieth of that of all these states, or less than that of the single state of Utah.

4. It is a country in which mineral lands were sold outright, and its mineral laws have therefore been evolved from a basis similar to that which now is, and for many years past has been, commonly accepted as the rule and practice in the United States.

5. The desire of the Government to promote and encourage the development of its mineral wealth in every way is emphatically shown by the policy of Government aid. This policy in the past has involved enormous expenditure in connection with water supplies for the mining districts, the Coolgardie water system alone (built to pump 5,000,000 gallons a day 351 miles to an elevation 1,200 feet above the supply point) involving an expenditure on the part of the Government of over \$18,000,000. * * *

The mining act of 1904 must therefore be regarded not as a theoretical attempt of political economists, but as the matured law of a state which has had large practical experience in mining matters, in which, in fact, mining is the principal industry and in which vast areas await settlement and development; a state which has, moreover, in many ways conclusively demonstrated its desire to permit and encourage the development and settlement of its territory.

And with regard to New Zealand he reports that—

The net result of the administration of the minerals contained in the public domain of the United States and New Zealand for the past 60 years is that, while both have provided for the sale of mineral lands and neither has reserved minerals in patents or grants, in the United States all the mineral production is either derived from freehold land or land that is in process of becoming freehold, while in New Zealand 90 per cent of the whole mineral production comes from areas held under lease from the Government. Truly, this result but corroborates the statement called forth by the investigation in Tasmania that the patriotic and efficient administration of the land affairs of a country is not a human impossibility.

The country in which these results have been attained is one of no mean mineral wealth, and is one in which the mining industry is in a very healthy and progressive condition. It contains, in the Waihi gold mine, the most productive gold mine in Australasia and the third or fourth in the world. It has the third most productive colliery company in Australasia, and is second only to New South Wales in its total coal production. It has been the center of several gold rushes, which, following those in California and Victoria, to some degree depopulated the Victorian fields and attracted many from California. It has produced in a little over 50 years more than \$350,000,000 worth of gold, and, with but little over one-sixth the area of Alaska, produced in 1905 three-fourths as much gold, five times as much silver, and many times as much coal. It has one-third more area and about three times the population of Utah, and in 1905 produced one-quarter more coal, about twice the amount of gold, and one-eleventh the quantity of silver.

The comparison with the coal production of Alaska is, of course, of no consequence as the coal lands in Alaska were not really open to development in 1905. This, however, does not detract from the value to us of the experience of New Zealand. In the Yukon territory of Canada coal lands are now leased by the government for a term of 21 years at an annual rental of \$1 an acre, and not more than 2,560 acres can be leased by one applicant. The royalty is 5 cents per ton on the merchantable output of the mine. Here, as in Alaska, facilities for transportation are necessary before any extensive development can be expected.

Shortly before I went to Alaska I improved an opportunity to discuss the question of its coal development with a group of prominent coal operators in the state of Pennsylvania, and I was surprised to find that they were unanimously of the opinion that the leasing system should be adopted and that only sufficient land should be leased to meet the demands of the market and provide the incentive for developing that market in a vigorous and rational manner.

Prompt Congressional Action Desire of Alaska.

When I reached Cordova I was presented with a series of resolutions adopted by the Cordova Chamber of Commerce expressing its disapproval of a leasing system for Alaska coal lands. Since my return to the states I have received from the Chamber of Commerce a most courteous statement to the effect that after further careful consideration the chamber did not now desire to be considered as opposed to a leasing system, and suggesting certain requirements or conditions which it believed should be incorporated in leases if such a system is adopted. What is desired in Alaska is prompt action by Congress in some direction that will promote development.

I have been equally interested in receiving a resolution adopted by the executive committee of an important organization in the oil industry of the state of California stating the conviction that a leasing system was the only way likely to be found out of the existing situation and urging its members to devote their attention to a consideration of the proper terms to be embodied in a leasing law. I have also received from the Philadelphia section of the Mining and Metallurgical Society of America, which embraces in its membership some of the most experienced and distinguished coal mining engineers in the country, a set of resolutions adopted at its meeting on the 17th of this month, after preliminary submission by mail to its members and an extended discussion at the meeting. These resolutions read as follows:

Your committee find the following conditions existing in the territory of Alaska relative to its coal resources:

First. It is essential for the proper development of Alaska that its coal fields be opened for commercial use without further delay.

Second. There are now known to exist in Alaska but two relatively small fields containing high-grade Navy fuel, and inasmuch as the Government now possesses no original source of such supply on the Pacific coast, it is desirable in the interests of national defense that a selected area of these fields be held and operated under the direct control of the Government.

Third. It is in the interest of conservation, economic operation, and due regard to the public welfare, as well as to the operator, that coal

lands in Alaska be leased and that these leases be made for all the coal in the ground.

Fourth. The royalties should be low and based on percentage of selling price of the coal at the mines.

Fifth. The minimum annual royalty should be nominal for the first two or three years after the execution of the lease, in order to permit and encourage the installation of efficient and durable equipment. After that period the minimum per acre should increase more rapidly than the area increases.

For example, the minimum royalty for 5,000 acres should be several times more per acre than for 1,000 acres. Such a plan would tend to prevent the tying up of large areas of undeveloped coal territory.

Sixth. A due diligence and forfeiture clause to effect continuous work should be included in the lease.

Seventh. Leasehold in coal land shall include all necessary mining rights and agricultural rights to the surface.

Eighth. Leases should not be given for less than 160 acres, and in shape should be square, their boundaries being east and west and north and south. In surveyed territory the boundary lines must conform to governmental subdivisions and consist of four contiguous 40-acre plats.

Ninth. It should be clearly recognized as a basic principle that the value of coal lands in Alaska to the Nation lies more in their use for industrial, commercial, and naval purposes than in the royalties to be derived therefrom.

Tenth. It is desirable that the revenue obtained from coal royalties revert to the benefit of the territory.

Eleventh. The quality of Alaska coal varies from poor lignite to high-grade semi-bituminous and anthracite. The physical character of the seams also varies, the best coals being seriously and unfavorably affected by the geologic structure. The high-grade coals of Alaska, which are now available for development under the present state of the art of mining and utilizing coal, are limited in quantity, notwithstanding the exaggerated reports to the contrary which have appeared in the public press.

Resolved, That your committee is of the opinion that the present coal-mining conditions in Alaska are unsatisfactory and detrimental to public welfare and that laws should be enacted, based upon the above principles; be it further

Resolved, That the committee recommends that this resolution be adopted as an expression of the views of the Philadelphia section of the Mining and Metallurgical Society.

I have already stated that Director Holmes, of the Bureau of Mines, and his associates have personally visited both the Bering and the Matanuska coal fields, and I am glad to be able to say that Dr. Holmes has read this address and concurs in its statements of fact and in its recommendations. That they are infallible I do not claim. It may include inaccuracies of statement and more serious mistakes; but these I reserve the right to correct whenever I discover them or whenever new facts or more mature consideration lead me to a different conclusion. For the present they are offered as definite suggestions for a policy under which the territory of Alaska may be immediately opened for wise and vigorous development.

I have been greatly pleased with the fair-mindedness and public spirit of the Alaskan people on this subject. I believe back of

their naturally great and justifiable desire for immediate action they want done in this matter whatever will in the end prove best for Alaska as a whole, without regard to special individual or corporate interests; and I believe that Congress and the American people as a whole will be in accord with that purpose.

The members of the American Mining Congress can do much to aid in carrying that purpose into effect.

The Relation of Congress to the Mining Industry.

BY HON. MARTIN D. FOSTER,
CHAIRMAN OF THE HOUSE COMMITTEE ON MINES AND MINING.

I am somewhat at a loss in appearing before you on this occasion, especially when I see before me so many men who are practical in the matter of mining. My visit to this Congress at this particular time has been of great interest to me. I have heard subjects relating to mining discussed in a most vigorous manner. I have heard subjects which concerned Congress discussed in a way that led me to believe that the speaker believed what he said. I have been interested because I hope that this meeting will be instructive to the people because the people of this country have an interest in mining affairs wherever they may be. We have heard much today of the Bureau of Mines, and I am glad to know and to say to you that I believe that that bureau has just begun its work. Under the leadership of Dr. Holmes, who is enthusiastic in his work, aided by the capable assistants he has about him, and with the proper means that ought to be given him, I am sure that he will accomplish much in the line of work that he has undertaken.

Originally the chief object of the Bureau of Mines was to conserve the lives of those who worked in the mines. During its brief existence of one year much has been accomplished, and in a few years I hope that it can be said of the United States that there is less loss of life and fewer accidents than any other country in all the world.

We believe that with the proper education of miners, of the operators and of the people generally that mine accidents may be reduced to a minimum, that the proper apparatus may be at hand whenever an accident does occur in a mine that will still further reduce the loss of life. But there is further work along these lines. It has been a question in Congress for at least five years, according to my experience, and there has been agitated the question of mining schools in all the states and territories of this Union. I am glad that we have made some progress at least, and I hope that in the future we may see the establishment by federal aid, where they are not already established, and where they are that they may be given aid so that this great work of educating young men in mining may go forward to better and higher results than those today. You are all

familiar with the agricultural colleges and how they were given aid a long time ago. You have seen these colleges grow and grow until they have been made powerful institutions of learning in the country.

It was told to me by Mr. George W. Hill, who was in Washington City and in charge of the division of publications, that he used to come to Illinois and try to talk to the president of the agricultural college, in an endeavor to learn what he was doing at Champaign, and he said that he could hardly get him to speak to him at all about the students that he had or of the college he was conducting. He eventually found the reason why, and that was that he had three students and they met in the basement of the University. I am glad to say that under state and federal aid that this institution has grown until we have a thousand men being educated year after year in the science of agriculture. This condition ought to exist in mining, because next to agriculture comes the industry of mining in this country. I know you are enthusiastic in your work and I hope that you may put the same enthusiasm into your work with the national congress to put through a bill to give aid to mining schools in all the states.

Alaskan Questions to Come Before Congress.

We have now in the committee of which I have the honor to be chairman, sub-committees appointed who are expected to take up these different questions and report early at the next session of Congress. I heard much today of the mining interests of Alaska, and I would not speak of this in view of the fact that my good friend, the Secretary of the Interior, is here now, except that these questions will come before the next session of Congress, and I hope that some settlement may be made of this great question. I am glad to say that there is a sub-committee working upon this question of mining and certain mining laws in Alaska, which I hope when put in operation, will prove to all the states what a model mine may be when established under the federal control of this government.

But I want to remind the American Mining Congress of this, that while I am in sympathy with all that has been said here as to the speedy opening of the coal mines of Alaska, because I believe that those people in that faroff country are entitled to the fuel that is stored up there, I want to emphasize this fact upon you and the American people, that I believe that any law which is proposed cannot pass Congress unless it provides for the conservation of the great wealth in that faroff country. Proper conservation, my friends, for the people of this country believe in proper conservation.

It may be said that Alaska should be treated as the other territories of this country were treated, but I want to remind you that after passing through numbers of years during which our resources have been squandered, that we have come now to a time when we are getting down to the bottom. We have Alaska left and this must be preserved, that the people may have the benefit of its resources.

I remember this, my friends, that it cost the government more than \$100,000 to determine what water might be taken from a stream, and then, when that water was taken, a franchise was given to a water company,—two of them, I might say,—who then combined and had the absolute control for a period of 99 years without one cent accruing to the national government or any one else, and they charged the people of the community in which that water power was delivered what they saw fit, and those people were helpless to do anything for themselves.

I believe, my friends, it is our duty, I believe it is the duty of Congress in all fairness and right and justice to the people of Alaska and of right and justice to the people of this country, that proper conservation on a proper plan should be evolved whereby this great treasure may be retained and preserved for the people and not fall into the hands or monopoly of one, two, three or half a dozen men who use it for a selfish purpose.

Leasing System May be Solution.

Any one who read the proceedings of the last session of Congress could get some idea of what conservation means. I would say tonight, good friends from Alaska, that you are clamoring that these mines should be opened, and I see you have a reason for so doing. I agree with you in that, but I want to say to you that there are other places in the United States, places in our own country and within our own borders, where Congress has refused and where a question has been debated on the floor for three or four days because they did not propose to give a monopoly of a water power to any company. So you are not the only ones who may feel that you have been imposed upon in this manner. A proper leasing of the coal lands of Alaska may be the solution of that proposition, but I want to be frank with you and say this tonight, that there appeared in one session of Congress a bill which proposed to fix a maximum rate for coal to be mined in that country. Did you ever hear of a man going out and saying to his boy or to his agent, "Take my horse to the market"? You can not ask that he shall not sell the horse for more than \$100.

I want to say that when the coal mines of Alaska are opened, if they are opened, by a leasing system, that the government has a right to receive what any one is willing to give. These are questions that are coming before the next session of Congress, when I hope they will be settled in a satisfactory manner. There will be extreme views on conservation and there may be extreme views on the other side, that believe all the benefit should be turned to those who may get there first, but through it all will come a compromise, I hope, that will result in these coal mines being opened, and then this treasury will be preserved in some way for the people for all time to come. It does not matter whether the lease is long if the property is safeguarded, and, my friends, I care but little and I don't believe that Congress will be so much concerned in what revenue might come to the national government, but I believe that they ought to be concerned about what that coal shall be given to the people for, and what price shall be charged to them. It ought to be a reasonable price. I don't believe that we ought to go out into the business of fixing prices upon all commodities, but I do believe that the people have a right to expect their lawmakers to see that no monopoly gains control of the staple commodities.

Now, my friends, I don't want to take too much of your time. I am glad to meet with you. I am glad to hear the expressions that I have heard today, and I want to say that publicity should be given to the views that you have expressed here in this meeting. The public should know your views as practical men upon mining subjects. Congress should know, because you are practical miners, you know what it is to open a mine, you know what it is to operate a mine, and that knowledge should be given to men who have these matters in charge and who pass laws for the proper regulation of this industry.

I thank you for the honor of appearing before you at this time, and desire to assure you that my work in connection with the committee on mines and mining shall be in the interest of the development of the mining interests of the country, and the conserving of these resources and above all the conserving of the human life of those who have to work in the mines.

The Government and the Mining Industry.

BY HON. WILLIAM HOWARD TAFT,
PRESIDENT OF THE UNITED STATES.

Mr. Chairman, and Ladies and Gentlemen:—I am not here this morning to make an address. I am here merely to extend greetings to the American Mining Congress. Circumstances change and men change with them. In the early days of this Republic it was thought, it was advocated, that those who were the least governed were the best governed. The laissez-faire school which even objected to a government postoffice for a long time had control, and it was thought that it was not the business of the general government to interest itself in anything except the maintenance of the army and the navy, our foreign relations, the judiciary and the policing of the territories. But, as I say, times have changed, and we have reached a conclusion, and I believe it is a wise one, that there are a great many things in which the united effort of the people through its government can be of assistance to the people at large, which cannot be trusted to individual enterprise and individual investment. The postoffice department is one thing, and growing out of the postoffice department are the postal savings banks and doubtless within a reasonable time we shall extend that to the parcels post. (Applause.)

There is in the constitution a clause that used to act like a nightmare on our democratic ancestors. The Whig ancestors were not so startled, but our democratic ancestors always thought that the general welfare clause of the constitution was an invention of the devil who got into the constitutional convention. (Laughter.) But as time has gone on the usefulness of that omnium-gatherum clause which gives to the federal government the right to spend its money in almost any direction that Congress thinks is useful to the people at large, has come to be a most admirable place from which to initiate useful movements.

In 1862, when the homestead law was passed there was established a department of agriculture. It was called a department, but the man at the head of it was not a cabinet minister, and he did not become so until many years afterwards. At that time perhaps the Government had enough interest of a proprietary character in land to assume the attitude of the farmer and to spend

money to find out how farms ought to be run. But now that all the public land is practically disposed of, it is difficult to support the expenditures of the agricultural department on the theory that the Government is a proprietor, and therefore authority for the expenditures can only be found in the general welfare clause; yet we are going on spending \$15,000,000 a year in agriculture. We spent more than \$50,000,000 trying to wrest from nature the secrets that will enable us to increase the product per acre of the land of which we now have none too much. You know that from the last census it appears that there was only 4 per cent increase of the total acreage of farms; there was only 15 per cent increase in the improved acreage of farms. There was 21 per cent increase in the population, and there was 100 per cent increase in the money value of farms. There was the same increase in the farm products. The farm values increased from 20,000,000,000 to 40,000,000,000; the farm products per year increased from 4,000,000,000 to 8,000,000,000. Now these indicate that we are reaching the limit of tillable soil in this country, but if we go on increasing our population as we have heretofore, by 1950 we shall have a population of 200,000,000. With that number of mouths to feed and with substantially the same acreage on which to feed them, I say substantially the same, we may increase by reclamation and irrigation and drainage so as to have 950,000,000 acres instead of 883,000,000, but we have got to go on and increase the production per acre, and the chief instrumentality for doing that is the agricultural department, acting in connection with the agricultural bureaus of the various states, which does a work not executory but a work of research, of investigation, of experimentation and of exploitation and publicity of the results of the work.

Importance of Mining Industry.

Now no one, I think, would contend that we ought to give up the agricultural department. I don't care how much he might worship at Jefferson's tomb, or how much he might have in times past considered the welfare clause the invention of the devil, he now would admit that at least so far as the agricultural department is concerned, we must continue in the error which we originally established, because it has been so beneficial to the people. So it is with respect to the mining industry. Next to the agricultural industry it is perhaps the most important we have and one which spreads over all the states. It divides itself into so many different varieties and is so widespread, that no one state can give to the research investigation and general publication of the results, the money and

the time and the attention and the number of people required in order that we should make progress. This is especially true with reference to the saving of the lives of miners engaged in the mining industry, and I am glad to note that Congress has passed a law creating a mining bureau. (Applause.) It does not argue necessarily that we ought to have a bureau for any particular thing because those who are interested in that particular thing ask for it. They want a bureau for everything in Washington. I could give a dozen different subjects; one is for children, and another—well, that perhaps is nearer reason than most of them, but one day when I was preparing my annual message for Congress, I had a solemn delegation that came in and asked me to recommend to Congress that we have a bureau on earthquakes. Well, of course, if Congress were to yield to that on the theory that we ought to have a bureau of investigation for every subject of any interest at all to the public, Congress would be engaged in creating new bureaus every year, and the difficulty about creating a new bureau is that it is like swarming into a new house. There are certain expenses that are added to the governmental roll of expenses that never are reduced thereafter, and that is the reason why the appropriation committees are so reluctant and hesitating in respect to the making of any new bureau at all. But you have a new mining bureau now established, and that it will grow by the application of some very diligent and earnest efforts on the part of the present head of the mining bureau, I haven't the slightest doubt.

Metallurgical Problems Will Receive Attention.

Your president suggested something with reference to the precious metals, and that it will have attention I haven't any anxiety on that subject at all. Congress will be advised fully as to its necessity, and if by nothing else but mere force of attrition it will be brought in the course of a few years to make all the provision that is needed there.

You heard last night a very interesting address from the Secretary of the Interior as to mining and the general subject of Alaska. I read the address last night, and I only want to say that I enjoyed the reading and approved it. He said in advance that he had published the address with my consent, after a general discussion with me, and now I want to make the confirmation complete. (Applause.) If the Secretary of the Interior would straighten out Alaskan matters and eliminate rodomontade and muckraking, and everything else that has interfered with the progress of Alaska, and put her on smooth seas and lead her on to only reasonable develop-

ment, he will earn my undying personal gratitude (applause), as well as my patriotic rejoicing as a humble citizen of the United States. (Applause.)

I believe Alaska has a great future before it, but it has been hindered by a sharpness and acuteness of discussion with reference to what shall be done, and an unnecessary ascribing of evil motives to those who were engaged in trying to promote its interests. Now we have got perhaps to a lull in the surface water—I am not speaking with confidence yet—(laughter)—perhaps there is a lull that we may go ahead to something really of substantial benefit for that great empire there of people who are struggling to develop it and who are entitled to our sympathy in their efforts. (Applause.)

Now, as I say, I am here to extend very cordial greeting, and I sincerely hope that this meeting will bring about a conference of resolutions and conclusions that will be useful in the general cause. I presume that these conventions have a great deal of use in that regard, and while I am not a technical miner and know very little about it, I shall always hold myself in Washington ready to hear suggestions and to help where I can put in my oar. I thank you very much. (Applause.)



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