

cally the same as was adopted by the National Electric Light Association of the United States, and it has been found to work well there during the last four years since the arc lighting came into vogue.

I will move, seconded by

"Recognizing the difficulty, if not impossibility, of measuring with any degree of accuracy the illuminating power of the arc lamp, and the great necessity for a more precise definition and statement of the obligation of the producer of electricity for illuminating purposes to the consumer thereof, be it resolved, that in the opinion of this Association, what is ordinarily known as a two thousand candle power arc lamp is one requiring on the average four hundred and fifty watts for its maintenance, the measurements being made at the lamp terminals, where no sensible resistance is included with the arc. In case such resistance is used, it must be excluded in the measurement."

Mr. Henderson: I second that motion; I think it is a move in the right direction.

Mr. Gossler: I would like to ask if that resolution is not just a little incomplete. The advisability of placing more lamps on the street of a smaller candle power is very seriously considered in many large cities, and in some cities has been adopted, and to simply confine this to the 2,000 candle power lamp I think is a little incomplete. I also think this is a resolution that will stand consideration and deliberation of longer standing than passing this resolution hurriedly in this Association. 450 watts at present seems all right, but I think it would stand consideration. I would not like to see it passed hurriedly.

Mr. Higman: Of course, it will not be obligatory for anyone to adopt that as a means of making their contract, and the 450 watts only serves as a basis; there can be no objection to add a proportionate part of that for any arc lamp. Of course, if the Association were to pass this resolution it would then be a matter for consideration to be determined whether the government should give it the stamp of an Order-in-Council, so that our men might act with some standing in the matter. I am quite willing to let it stand as a notice of motion until next year.

Mr. Thomson: 450 watts straight current will give more light than 450 watts alternating current. I believe, according to the measurements, there is at least 200 candle power difference between the alternating lamp using the same watts as compared with the straight current, so that in stating 450 watts, it should be stated whether it was straight current or alternating; and there is a lot of difference between the enclosed arc lamp and the open.

Mr. Dion: Since this is a question that, as Mr. Gossler has said, deserves careful consideration, especially as it may form the basis of an Order-in-Council which would go out throughout the country and have to be accepted as law, would it not be better to appoint a committee to make a report at the next convention. It is true it would delay the matter for twelve months, but in those matters it is better to go slow than to make any mistake. A committee of two men could be appointed to consider the matter carefully during the year, and make a report at the next meeting which would be adopted or rejected.

Mr. Turbayne: I think the lamps under the candle power system can be read on the wattage basis, and I think they are.

The President: As I understand the purport of Mr. Higman's proposed resolution, it is not the establishment of a fixed quantity of energy for a defined candle power, but to have this Association give its sanction to the adoption of the idea that candle power as an element of measurement shall be abolished, and that measurement in energy shall be the basis of a contract; and I believe, and I submit it to you for your thoughtful consideration, that if Mr. Higman will modify his resolution in this respect, and instead of referring to 2000 c.p. or to 450 watts, make the resolution to read "that the basis of contracts shall be upon the basis of energy supplied," we can all agree with his resolution immediately. We do not have to appoint a committee, we do not have to wait a year, we can settle the question now; that is, that this Association recommends not only to its own members but to the governmental authorities, that in making a contract for service it shall be upon the basis of energy supplied to the lamp, regardless of what nominal candle power or actual candle power may be, and I request, if that meets with your approval, that Mr. Higman modify his resolution in that respect, and in that respect, if it is approved by us, I think it will undoubtedly form the basis of future contracts with municipalities.

Mr. Dion: While there can be no objection to the motion, altered as you suggest, it would hardly cover the ground. If I understand Mr. Higman right, he refers to contracts that are already made, as well as those to be made.

Mr. Higman: No, you cannot affect them.

Mr. Dion: Suppose he wanted some definition of what a 2000 nominal c. p. lamp meant, so that he could determine—

The President: I don't understand that to be Mr. Higman's idea.

Mr. Higman: No; it is to deal with contracts when they come up in future.

Mr. Gossler: I agree with Mr. Dion, and repeat what I said, that there are so many things to be considered that I do not see how you can make this matter the subject of a resolution to be passed now. When we say "on the basis of energy," where is that energy going to be in feeding the mechanism or the arc?

The President: Mr. Higman's resolution is, energy yielded to the lamp.

Mr. Gossler: That opens the question right away, where is your energy going to be consumed? You may have one-half of that energy used in the mechanism of the lamp. The object of the lamp is light, not having the energy consumed in the mechanism. I don't see how you can make this the matter of a resolution to be passed hurriedly. It means an awful lot of trouble if you do, in my opinion.

Mr. Nexon: I quite agree with the last speaker, and also with

Mr. Dion, that it would be far better to leave this matter over and have whatever is done done upon such a basis that there will be no injustice in the future. What I would be afraid of would be that any resolution passed by this Association would be taken as authoritative by the government, because this is the highest electrical authority that we have in the country as a body of independent individuals; they would naturally assume that whatever legislation this body made with reference to matters of that kind, would be an indication of the wishes of the electrical fraternity throughout the country, and it probably might be crystallized into law. If that is the case, it is better before such a thing is done that we know exactly the ground we are taking. It may be that it is all right; I am not particularly familiar with it. I am interested in this question from the fact that I am one of the parties having contracts with municipalities, and, of course, you can't get municipalities to understand what is meant by watts, in all their dealings, so far, through the nominal candle power, they have a sort of an idea, although very hazy, what that means; and when you come to get them to accept the thing in watts, a thing they know nothing about, you will have difficulty in convincing the authorities that you are not trying to take some advantage of them.

Mr. Higman: I brought this matter up casually before in Montreal with a view of having the Association take it up. We do not want to interfere or legislate in the slightest degree, but we are called upon to settle these disputes. Now, as a matter of fact, the so-called 2000 candle power gives only from 500 to 700 candle power. It is better to call a spade a spade and not say it is an axe.

Mr. Wyse: I would like to move that a committee be appointed to deal with this question. It is too serious a question to be disposed of by motion hurriedly. It immediately appeals to a central station man; that is, the great advantages of it appeal to the central station men, in the idea that you give 450 watts and receive pay for 2000 c.p. regardless of how that energy is consumed and the amount of light; but, unfortunately, there are two parties to the contract. The other party is the municipality, and what they judge, regardless of nominal candle power or actual candle power, or watts, or anything else, is the amount of apparent light or useful light they get from an arc lamp, and that is going to be their basis of contract. They would immediately inquire as to why the alternating current arc lamp, taking 450 watts, was not giving as much light as the direct current arc lamp, taking the same amount of current; and where you might make that a basis you would have to refer to the apparent candle power represented by a given number of watts, that is, you would have to refer to something that would appear to the people a given amount of light; 450 watts, whether alternating current or direct current, would have to represent to the people a certain amount of light which they could understand or see. I move that a committee be appointed to deal with the question.

Mr. Thomson: I second the motion.

Mr. Higman: I fancy my position in this matter has not been quite understood. I have simply brought it up in order that our inspectors might be of as much use as possible in trying to straighten out the little kinks that electric lighting companies have in many cases; that is the sole object. If the Association is not prepared to take the matter up, I will withdraw the motion and you can take it up at some future time.

Mr. Yule: I remember some years ago Mr. Higman brought this matter up and the discussion was much the same. He recommended then that all contracts that were afterwards made should be made on the basis of energy. We attended to that in Guelph, and had it fixed in that way on the suggestion of Mr. Higman.

The President: I understand Mr. Higman's motion just as he has offered it, I think, that is, he would like to have first determined a measure, approved by central stations in body assembled, by means of which his employees could interpret not only future contracts, but perhaps present contracts. I recognise that Mr. Higman is in a difficult position because a great many contracts recite that the light furnished shall be of so many nominal candle power. It would facilitate his work a great deal if it were possible to have an expressed opinion from us that a nominal 2000 c.p. arc lamp should not require at the terminals of the lamp more than 450 watts. The point raised by Mr. Gossler that 450 watts may be consumed to the extent of two-thirds in the mechanism of the lamp, and that only one-third shall be applied for useful effect, does not, I think, coincide with Mr. Higman's idea. His purpose, as I take it, is that the 450 watts of energy delivered to a lamp shall be employed by a lamp of the very best character of construction obtainable to-day, so that the maximum of the resultant energy shall be given to the municipalities by the company who delivers 450 watts to the lamp.

Mr. Leonard: Measure the energy across the arc and I think you will get rid of the difficulty.

The President: I take it that Mr. Higman's purpose here is to obtain some defined plane upon which the government, the municipality, the private consumer and the company may meet without any possible chance of error or equivocation; and while it is desirable, as suggested by Mr. Dion, Mr. Gossler, Mr. Wyse and Mr. Thompson, that we be not hasty in determining what candle power may represent in energy, I do believe that we should now support Mr. Higman in some declaration to the effect that energy shall be the basis of calculation on which future contracts will be made, and if possible the basis upon which old contracts may be interpreted.

Mr. Thomson: I believe that 450 watts from carbon to carbon between the carbon points of an arc lamp would give what is known as 2000 candle power nominal, straight current—450 watts between carbon points with a series arc lamp or straight current arc lamp.