THE PRESIDENT: Then I think we had better leave this until the general business comes up. Meantime, we might adopt the report of the Manitoba branch.

Moved by Mr. Schwitzer, seconded by Lt.-Col. Ruttan that the report of the Manitoba branch be adopted. (Carried.)

The secretary read the report of the Ottawa branch.

Moved by Mr. W. J. Stewart, seconded by Mr. Perley, that the report of the Ottawa branch be adopted. (Carried.)

THE SECRETARY: It is desired to be announced that a photograph of the members in attendance at the annual meeting will be taken at 3 p.m. on the steps of this building.

THE PRESIDENT: Gentlemen, His Worship, The Mayor of Ottawa, desires to extend an official welcome. We will suspend business of the meeting for that purpose.

MAYOR HOPEWELL: Gentlemen, it is with extreme pleasure that I offer to you a hearty welcome to the city of Ottawa, the Capital city of this Dominion. I myself am not an engineer of any kind, although some people have been cruel enough at times to say that I am. However, I think I would have enjoyed the work of a civil engineer, the making of crooked things straight, high things low and low things high, and so on. I hope you will have an exceedingly pleasant time at your convention here, in the capital; that it will not only be pleasant, but that you shall also find it profitable. I grant you the freedom of the city, if you know what that is. I do not. You may have it if you can find it, and I say this without any reservation whatever, knowing that if you are successful in finding it you will not abuse the privilege, whatever it may be. It is with extreme pleasure that I extend to you heartiest welcome to this, our Captial City, and I may say now that I hope to have the privilege to-morrow evening, at your banquet of saying another word or two there. (Applause.)

THE PRESIDENT: Your Worship, on behalf of the Canadian Society of Civil Engineers, I wish to thank you most sincerely for the very cordial welcome you have given us to this "Fair City with its Crown of Towers." I feel sure that the members will enjoy their sojourn here and will derive much pleasure and benefit from the visits to be made to the industrial centres and scientific bureaus within the vicinity. On a former occasion, one of the society's summer excursions, we all remember how fascinated we were by the beautiful scenery of the Capital and the many points of interest in its surruondings. This is the first time that we have had the extreme pleasure of holding our annual meeting in the city of Ottawa, but I trust that at no distant date we shall return, and I feel sure, Sir, from the words you have just uttered, that we will receive the same warm welcome that we have received at the hands of the chief magistrate to-day.

REPORTS OF COMMITTEES.

Moved by Dr. Galbraith, seconded by Mr. St. Laurent, that the report of the committee on Usefulness of the Society be received. (Carried.)

MR. MCNAB: Referring to the third paragraph of the report, I notice that the Railroad Age Gazette, a reputable journal in the United States, says that the meetings of this society are held "usually fortnightly" but the word "irregular" is also used, in its list of societies holding meetings. Other societies are given as "fortnightly, excepting June to August." Ours is put down as "irregular." I would suggest that this be changed.

THE PRESIDENT: Your suggestion will be noted, Mr. McNab.

Moved by Mr. W. Kennedy, seconded by Mr. Perreault, that the report be adopted. (Carried).

MR. LEOFRED: Mr. President, are there two separate reports? This one only refers to the usefulness of the society. The educational requirements are not mentioned, although last year this subject and its discussion filled six pages of the annual report. I do not see any mention of it.

THE PRESIDENT: This is the whole report of the committee.

Gentlemen, Sir Sandford Fleming is with us this morning. It was his intention to favor us with an address, and we placed it on the programme for 3 o'clock, but owing to other engagements, Sir Sandford prefers to address us this morning, and I am sure we shall be delighted to hear him. (Applause.)

SIR SANDFORD FLEMING: Gentlemen, My words will be very brief. I had hoped to be here in time to follow the mayor with a few words of welcome to the Society, but I found it impossible. I need not tell you what a great satisfaction it is to me to be here to-day. I am afraid I have not been a very good member, for I have been an absent member too often. I desire, on this occasion to bid the Society a warm welcome to Ottawa.

I have been a resident of this city for a great many years—so many that I almost forget the number—since before Confederation, and that is now over forty years. I can go back no less than fifty-five years to my first sight of Ottawa. It had not then even the name of Ottawa; it was called Bytown. I am an old member of this society, and of the sister American society. For nearly half a century I have been a member of the American Society of Civil Engineers. Not quite so long as that a member of this society, for it has not been in existence that length of time. It has been my privilege to witness a great deal of the engineering service which has taken place between the Atlantic and the Pacific, and I think I may be permitted to welcome the younger men to a noble profession. You belong to a profession of the first order. Although it is essentially a practical profession, you will find that its members cannot be too learned. Whatever has been done by engineers in the past, and whatever is doing to-day, I can see a wide field for this profession. There are between the oceans which bound Canada on three sides, great engineering problems which have to be solved in the development of our great inheritance—that inheritance which has been freely given to us by the great mother of nations for our children and our children's children to occupy and enjoy. With these few brief words, Sir, I have the greatest possible pleasure in giving my humble welcome to the society upon its visit to the Capital of Canada. (Applause.)

TRANSPORTATION.

THE PRESIDENT: I have the honor to be the chairman of the parent committee on Transportation. It is sub-divided into first, a sub-committee on transportation routes, of which Mr. Tye is president. We expect him here to-morrow. Second, a committee on ties. Mr. MacPherson is a member of this committee and is with us. Third, a committee on Rails and Fastenings, of which Mr. Kelley is chairman. Mr. Kelley is here to-day. The fourth, is a committee on Roadbed and Ballasting, of which Mr. Sullivan, assistant chief engineer of the C.P.R. is chairman. He will be here, I think, to-morrow. I will call on Mr. Kelley to present the report on Rails, Fastenings and Tie-plates. This report is of great importance to railway engineers, and Mr. Kelley has taken a great deal of pains with it. He and his associates on that committee are well qualified to handle their subject. Mr. Kelley was president of the American Railway Engineers and Maintenance of Way Association, which includes this kind of work. The committee was continued from last year and has increased its findings. If I may express an opinion, I think they should be continued in office, so that they may go on with their good work.

MR. KELLEY: Gentlemen, the sub-committee on Rails, Fastenings and Tie-plates last year presented a report giving the various standard sections of rails now in use and proposed. In considering a subject of this kind, if we endeavored to cover the whole field in one year we would make a very unsatisfactory report that would require to be changed every year and no one would read it, so the committee has endeavored to take up one subject at a time, that will be of sufficient interest and the report on which will be of sufficient length to afford useful information to the members. The question has been up for a number of years as to the adoption of a different rail section from that commonly used. The American Railway Association, which includes practically all the railways in Canada and the United States, have, through a committee, formulated some rail sections which the various roads proposed to try. The committee therefore, took that subject up as the first for presentation, the rail sections in use and proposed. It seemed to the committee during this year that the next feature proper to present to the association was how those rails would be tested and what would be the result. Unfortunately, in the year that has passed the new sections have not been used sufficiently to give any results which can be formulated into a law. As to the proper section, the railroads that have used the girder section known as "A" are still as strong in their belief that "A" is the one to be used, as the companies that have used "B" are in their belief that it is the one to be used. So that we are unable to give any reports that would afford any information. Early in the year the question came up, How shall we compare the physical characteristics of these rails when no two mills used the same drop-testing machinery? An examination of the drop-testing machines at the different mills would show as many different types as there are mills; therefore, the energy exerted by the drop falling in the mill at Pittsburg was entirely different from the one at Nova Scotia. If the Canadian Pacific and Grand Trunk Railways, with their large mileages in the United States, have rails tested in the United States by one form of machines and others tested in Canada by another form of machine, the results may be confusing. Therefore, after some discussion with the mill men a typical machine was proposed, and several of them said if you can decide upon a machine that will give you satisfactory results, we will adopt it. The old machines had an anvil varying in weight, on a foundation of different characteristics. After it had been used for a few months and it had stood the shock of the weights, the anvil was likely to be loose and out of level, and the results on the same anvil would be different. The machine shown in the diagram accompanying the report was intended to overcome this. At first, it would seem that the result would not be good because the weight of the anvil is supported on springs, but the tests have shown that an anvil supported in this way gives nearly uniform results, and the deflections of the rails from the same trip are greater than with the old anvils. That is rather astonishing, that an anvil supported as described, and taking the blow of a twenty-thousand pound weight falling fifteen or twenty feet would afford a better and more uniform resistence than an anvil supported on solid rock. But that has been the result; the deflections are greater and the results more uniform. So that to-day we feel that the machine shown in this diagram is giving the results that we have sought for and that this association should put itself on record that rails to be tested should be tested under this drop-testing machine. Many of the mills in the United States,in fact nearly all of them, have put this machine in, and I believe the mills in Canada are going to do the same. I do not speak authoritatively, but I believe they will, because they have met us fairly on all the questions we have brought up for the improvement of the rail. (Applause.)

MR. SCHWITZER: I would like to ask Mr. Kelley if that is the same drop-testing machine that has been adopted by the American Maintenance of Way Association?

MR. KELLEY: Yes, it is the same machine. It was adopted by a committee on rails.

Moved by Mr. Schwitzer, seconded by Mr. Schreiber, that the report be adopted and that the committees on Rails, Fastenings and Tie-Plates