

**PAGES**

**MISSING**

# The Canadian Engineer

A weekly paper for Canadian civil engineers and contractors

## SOCIETY ORGANIZATION, GROWTH AND STATISTICS

BRIEF ABSTRACT OF PRESIDENTIAL ADDRESS DELIVERED BEFORE THE CANADIAN SOCIETY OF CIVIL ENGINEERS AT ITS ANNUAL MEETING LAST WEEK IN MONTREAL

By **GEORGE HERRICK DUGGAN**, Mem.Can.Soc.C.E., M.Am.Soc.C.E.  
Vice-President and General Manager, Dominion Bridge Co., Ltd., Montreal.

THE Society was established February 24th, 1887, and incorporated 23rd June, 1887. The 30th anniversary of our foundation thus occurring this year, it may not be inappropriate to record some statistics of our growth and history, so that they are in convenient form for reference and in the hope that this history may be of assistance to the members in shaping our course for the future.

There is on file with the secretary a table showing for each year since the formation of the Society, the number of members in each grade, the total corporate membership and the total membership of all classes. Also, showing the number of members exclusive of students in each province with the percentage these numbers bear to the total membership exclusive of students of the Society for that year. The table is somewhat cumbersome to print and the accompanying charts have been prepared from it.

Chart No. 1 shows the membership each year in different classes. (NOTE: As this chart is practically identical,

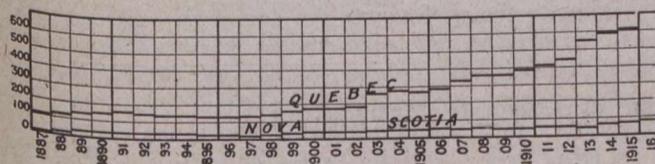
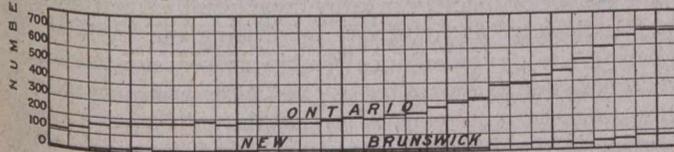
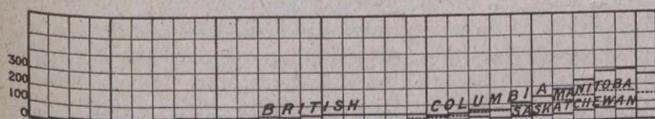
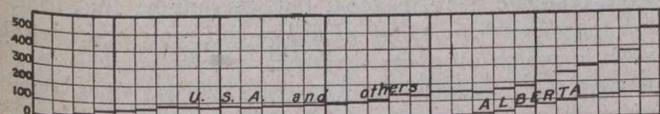


Chart 2.—Curves Showing Distribution of Members (Except Students) by Provinces.

tical, so far as the information it shows is concerned, with the chart published on page 46 of our January 18th issue, we are not reprinting it herewith.—EDITOR.)

Chart No. 2 shows the distribution by provinces of the members, not including students, for each year.

Chart No. 3 shows the percentage of corporate members in each province for each year.

Table No. 4 shows the date of formation of each branch and its membership each year thereafter to the present time; also the dates of formation of the provincial divisions now existing, with their present membership.

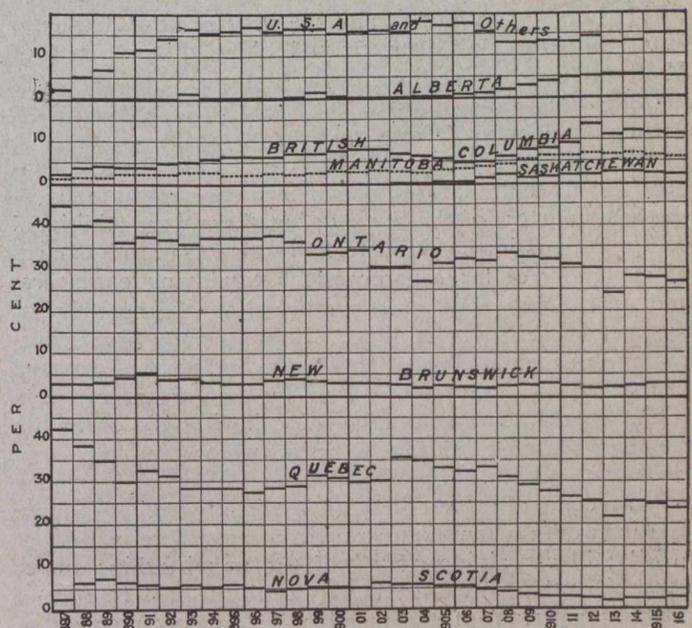


Chart 3.—Curves Showing Percentage Distribution of Members (Except Students) by Provinces.

Table No. 5 shows the geographical distribution of corporate members. The growth of the Society and the distribution of its members is apparent from the other charts and tables, but it seemed to me interesting to record the increase in membership in the larger eastern cities and by somewhat broader geographical divisions. I have therefore shown in Table No. 5 for the first year, 1887, the past year, 1916, and the intermediate year of 1902, the total corporate membership in column "A"; resident in Toronto, column "B"; in Ottawa, column "C"; in Montreal, column "D"; in the area bounded by lines roughly drawn around these three cities, "E"; in the somewhat arbitrary geographical divisions west of Port Arthur, "F"; from Port Arthur to Montreal, "G"; east of Montreal, "H"; with the percentage of the total corporate membership in each column for each year.

It will be seen that in 1887 the city of Montreal had 30.4% of the membership; the area shown in column "E," 65%; the district Port Arthur to Montreal, column "G,"

Table 4.—Branches in Order of Establishment and Membership Therein Each Year (Exclusive of Students).

Year Founded	Sydney 1905	Toronto 1906	Manitoba 1907	Quebec 1907	Ottawa 1909	Vancouver 1909	Kingston 1911	Victoria 1912	Calgary 1913	Edmonton 1914	Regina 1915	Total Branch Members	No. of Branches
1905	14	0	0	0	0	0	0	0	0	0	0	14	1
1906	15	58	0	0	0	0	0	0	0	0	0	73	2
1907	0	108	43	41	0	0	0	0	0	0	0	192	3
1908	0	142	64	44	0	0	0	0	0	0	0	250	3
1909	0	155	70	43	108	32	0	0	0	0	0	408	5
1910	0	154	91	51	140	45	0	0	0	0	0	481	5
1911	0	123	106	52	157	89	13	0	0	0	0	540	6
1912	0	152	124	56	183	108	11	58	0	0	0	692	7
1913	0	180	144	70	185	128	11	53	41	0	0	812	8
1914	0	192	175	75	197	137	21	53	51	44	0	945	9
1915	0	211	132	89	210	111	14	63	55	40	23	948	10
1916	0	200	141	89	221	117	15	65	48	42	28	966	10

80.5%, and the district west of Port Arthur, column "F," only 7.4%. In 1902 Montreal had dropped to 17.4%; the district column "E" to 36.7%; the district Port Arthur to Montreal to 34.7%, while the district west of Port Arthur had increased to 13.7%.

Comparing 1887 with 1916, Montreal has decreased from 30.4% to 17.4%; the district represented by column "E" from 65% to 36.7%, and the district Port Arthur to Montreal from 80.5% to 65.5%. The district east of Montreal has remained practically stationary, being 12.8% in 1887 and 11.9% in 1916, but the district west of Port Arthur has increased from 7.4% to 23.4%.

It will thus be seen that Montreal, on account of members alone, would naturally have been chosen originally as the headquarters of the Society, but there were additional considerations in that Montreal was also the headquarters of a number of large corporations employing engineers, and that it was conveniently reached by the majority of the membership at that time. Although Montreal's percentage of membership of the whole Society has dropped from 30.4% to 17.4%, it still easily maintains its lead in actual numbers over any other city, having 367 corporate members against 168 in Ottawa, which has the next largest number; it remains the head office of the large railway companies and of large engineering corporations, and it is only a few hours run from anywhere in district "E," still containing 36.7% of the membership; more convenient than any other large city to the eastern district containing 11.9% of the membership, and convenient to the district from Port Arthur to Montreal containing 65%. So that it may be said to have 77% of the membership tributary to it, and to all appearances it will continue to be the headquarters of the Society for a long time to come.

While there has been a large increase in the number of members in the district tributary to Montreal, there has been a much larger percentage of increase in the number of members west of Port Arthur so situated that they can only reach Montreal at much expense and with consider-

able loss of time. I think one would be pretty safe in saying that many Canadian engineers have never even seen the Society's building or know anything of the work of the Society beyond its publications and the activities of the local branch to which they belong. It is to be expected that members so situated should feel that they are best served as regards their daily work by their local associations, and have little interest or sympathy in the general work of the parent society as it exists to-day. My personal impression is that this attitude has increased largely of late. Its tendency under our present organization is to still further increase, and that, if we are to build up a strong national Society representing the whole profession in Canada, it is a factor to which most earnest consideration should be given.

The charter members, although so compactly situated, apparently foresaw the spread of our membership and made provision in By-law No. 31, now No. 54, for the formation of branches. The idea grew. It was discussed and encouraged in my early days on the council, and I was interested in the first branch formed at Sydney, N.S., when resident there in 1905, but, unhappily, that branch did not survive the stress of heavy and rapid construction work in which all of its members were engaged. It will be seen that in 1906 there were only two branches, one of which is not now in existence, with a total membership of 73, or 5.3% of the whole; while in 1915, the last year for which we have completely verified records, there were ten branches with a total membership of 948, or 31% of the whole.

Incidentally I may say that the Society and the council have not been inactive in providing headquarters worthy of the Society as it grew, in revising our by-laws, in altering the grades of membership as occasion arose, in providing for examination of candidates and generally in elevating the requirements for membership so that membership in the different grades might have a more definite meaning to the profession.

Table 5.—Geographical Distribution of Corporate Members.

Year	A Total Corp. Membership	B Toronto	C Ottawa	D Montreal	E Area inclosed in lines drawn around Toronto, Ottawa, Montreal	F District west of Port Arthur	G District Port Arthur to Montreal	H District east of Montreal
1887	251	18 7.4%	37 14.8%	76 30.4%	163 65.0%	18 7.4%	201 80.5%	32 12.8%
1902	562	38 6.8%	61 10.8%	165 29.5%	311 55.4%	77 13.7%	195 34.7%	118 21.0%
1916	2,120	153 7.4%	168 7.9%	367 17.4%	777 36.7%	495 23.4%	1,383 65.5%	252 11.9%

In this connection it is interesting to note that in 1887 the members were 53% of the total membership; in 1897, 47.5%; in 1907, 26.7%; and 1916, 22.6%. Associate members in 1887 were 15.4%; in 1897, 25%; 1907, 37%; in 1916, 52.5%. Or, classing juniors with associate members, 57.8%. Summarizing, the percentage of members has dropped from 53% to 22.6%, while the percentage of associate members has risen from 15.4% to 52.5%.

In addition to the above, codes of ethics have been adopted and other internal changes made as required to keep abreast of our growth and the times. Legislation has been sought and obtained in some cases, whether that legislation has always been wise or not, it was nevertheless the desire of the majority of the members at the time, and, in either view, it now has little effect on the general activities of the members and may be left out of the discussion.

That ends my formal address. My further remarks are largely my personal opinions on the future conduct of our Society, are thus controversial and do not properly belong to a presidential address—indeed, it would perhaps be wiser to stop here on safe ground; but, in view of the interest now aroused in quickening our activities and enlarging our scope, the attention these matters are likely to receive at this meeting and the inability of the chair to take part in the discussion, I cannot let the opportunity go without making some comments and suggestions. I trust it will be understood I ask your further attention to my informal remarks to follow, only because of my deep interest in the welfare of the Society and the profession. I have had an active part in the management of its affairs for a long time, having served on the council for fifteen years starting in 1894, and have knowledge of many of the complaints, suggestions and acts of the Society during that period. In reference to one frequent complaint, I wish to say that I have not served on any council in that time of which the members who could attend have not been regular in attendance and have not given their best thought to every question that arose touching the welfare of the Society or the consideration of the applications for membership in whatever grade.

The statistics, showing as they do a very healthy growth in membership and apparently a widespread interest, if taken by themselves would seem to be cause for complacency and a feeling that all is well. We know, however, from the many complaints, that most of our members are far from satisfied, and I feel myself that we have only made a start towards organizing our forces to advance our profession to that position in public estimation to which the engineer is entitled.

We may first inquire of what benefit the Society can be to its members and what it is now accomplishing. It seems to me the benefits to be expected are of two kinds: First, what might be called the internal benefits within the profession, such as the professional standing amongst ourselves, conferred by membership; the advancement of professional knowledge by the reading and discussion of papers and the work of technical committees; the acquaintances and friendships brought about by meetings, conventions and other Society activities; and some advantages to its members in finding employment and advancement resulting from the above.

The other class of benefits we might call external, broadly covered by the proper recognition of the profession of the engineer by the public, including the proper appreciation of the engineer's services on engineering questions, and the further recognition by the public that the

engineer by his training and attainments should be eminently fitted to take his place in public affairs and that he should be sought as an adviser in questions not only of engineering, but as well on other important matters where his engineering training and standing qualify him to give sound advice on affairs not directly related to the practice of his profession. The latter feature, under many different headings and in different ways, has been the subject of a number of addresses and discussions amongst our neighbors in the United States and the technical press has made several references to success attending this movement.

In my view we should strive for all these benefits both internal and external, but we cannot hope to attain full success in our quest for external benefits until we have put our house thoroughly in order and so organized our institution that we realize the internal benefits to the greatest extent possible, and I wish therefore to make a few suggestions as to improvements that seem within our immediate grasp.

It seems to me important to have some arrangement by which the considerable portion of our membership far removed from headquarters can keep in touch with the work of the Society and can take its share of directing that work. It is true that every member now receives a report of proceedings at the annual meetings, such transactions as our limited funds enable us to print, and most of the members belong to some local branch or division where matters of more or less general interest come up for discussion and which sends in a report once a year to be distributed to all of the members of the Society. This, however, is long-range work—in many cases divested by elapsed time of its interest, and there must be many who would be glad to take an active interest and discuss our affairs from time to time as they arose, as does the Central Council, but who do not care to give the time to put their views in correspondence—indeed, there is little opportunity for any one to do so.

I think some plan should be devised by which there should be a special meeting of the council at least once a year, preferably twice, to discuss the more important affairs of the Society. If it is not feasible to bring the whole council together, delegates could be sent from the provincial divisions where these exist, and arrangements could be made to nominate a councillor to represent a district where a division has not yet been formed. It seems to me that in an organization such as ours, meeting in general convention only once a year and properly limited in its actions as to changes in by-laws and the general conduct of affairs so that these can only be brought about by slow and elaborate process, it is necessary to leave much to the direction of the council. For, while the discussions that take place at these annual meetings are most valuable, little action can result from them except as it is worked up in detail by the council, and I think important affairs should be discussed and determined by more of the council than can possibly attend the ordinary meetings.

Many of our councillors resident in Ottawa, Quebec and Toronto sometimes attend the regular meetings, but it must be a tax to come even this distance and it cannot be expected that councillors will come from a greater distance unless by special arrangement and when there are definite important matters to discuss. The experiment of a conference was tried two years ago with some success, but there is not adequate machinery in existence to continue the good work started and the finances of the Society have not permitted the expense of calling subse-

quent conferences to consider arrangements for this and other activities.

Presentation of papers and the exchange of professional experience and thought has often been referred to as one of the most important functions of our Society, as it no doubt is. Our shortcomings in this respect have been deplored in annual meeting and have been referred to in several presidential addresses but no substantial improvement is visible; indeed, we have rather deteriorated in the number of papers per member. I think it may be taken as a truism that the value of a paper both to the writer and to the members is very largely enhanced by the discussion thereon and that oftentimes the discussion brings the writer into prominence far more than his original communication, besides giving other members interested a wide range of thought and experience upon the subject. My impression is that by-law No. 48 is seldom lived up to and that with our present haphazard arrangements, interesting and valuable papers are often read at the branches that never reach the publications of the Society, and if they do the discussion that took place on their presentation seldom accompanies them. Even at headquarters the papers are seldom presented sufficiently in advance to get the discussion they deserve.

There have been interesting articles contributed by our members to the engineering press that would have enhanced the value of our transactions had they first been read and discussed before the Society, and still might later have found their way to the wider publicity of the technical press.

We have probably lost these papers through the feeling that papers presented to the Society are frequently long delayed before publication and often are not published until they appear in the semi-annual volume. I think it will be agreed that the present procedure almost consigns a paper to oblivion, because few will read all the transactions en bloc when received in a large volume.

I feel confident that our transactions could be greatly improved by a more prompt observance of the procedure laid down in by-law No. 48, with the addition of arranging that every paper accepted as worthy to be published in the transactions be first issued in time to permit every member interested to submit a written discussion if he is unable to be present at the reading of the paper.

It is easy to suggest improvements in our service where it now falls so far short of what we all feel it should be, but it is difficult to see how any substantial improvement can be accomplished on our present revenues. A consideration of the balance sheets for several years past shows our revenue dangerously near our expenditure. It is true that this year we have an apparent surplus of revenue of about \$3,600, but this includes entrance fees, and it must be considered that an exceptional effort to collect arrears has been made for the past two years, that the reservoir of arrears has been heavily drawn upon and will not always be available to make up what might otherwise be a deficit. Moreover, in anticipation of a lower revenue than was actually received, the Finance Committee pared the appropriations to the very lowest limit and the service to our members has been much curtailed. Again, all expenses are rapidly increasing and, through the growth of that very necessary part of our organization, the branches, the amount returned to the branches is becoming a heavy tax,—last year having amounted to \$2,400.

From an experience gained through an active interest in the Finance Committee for some years past, I believe the Society is being administered economically with the

exception perhaps of the collection of arrears. Arrears has been a subject of serious consideration and is too long to discuss here. I think we may assume, however, that to deal with these too strictly will result in loss of members, in some hardship, and that our average revenues over a period of several years would not be sensibly increased.

In my view the members are now getting practically all of the service they can expect from the funds at the disposal of the Council. In other words, if better service is required, it must be paid for.

If our members realize, as I am sure they will, that increased revenue is necessary to give the service that should be rendered by a national society to its members and to the profession it represents, I am confident means will be found to provide the revenue without asking appreciable sacrifice on the part of the members. Possibly it would mean some reduction in the total roll, but those who could not afford to pay would still benefit by the more rapid elevation of the engineer and the general *esprit de corps* engendered in the profession.

I don't think we should ask students or juniors to pay any increased fees because the benefits these grades receive from the Society probably do not extend beyond its publications and the friendships formed through its meetings; also because as a class they are probably not able to afford a larger subscription. But, as a man rises in his profession to the grade of associate membership, he no doubt receives additional benefits and he should, under ordinary circumstances, be able to afford a larger annual subscription. A full member has, we may assume, attained that position in his profession and in the community where any reasonable increase in his dues would be of little financial embarrassment to him and, if the Society is performing all its functions, he should be realizing in addition to the internal benefits some of the benefits to be expected from the recognition of the engineer by the public both in his profession and in public affairs.

I would therefore suggest that members and associate members resident at headquarters who, from their situation, have the use of the building and library and of the clerical staff in conducting their meetings, should pay larger dues for these privileges—the increase for the associate members to be comparatively small and for full members to be of a very considerable amount, to bring their dues more nearly in accord with those paid by resident members of the American Society of Civil Engineers for equal privileges.

Again, I think the general funds of the Society should not, under the difficulties that now confront us, be devoted to the up-keep of branches beyond the work which is of a general society nature, such as the publication of reports, the actual clerical work of communicating with headquarters, the payment of delegates' expenses and affairs of a similar kind, leaving all local assessments by the branches or divisions to be made as each may determine for itself.

Reference has been made to the important work expected from the Society in the influence it should exert outside its immediate membership. This seems to be our real goal, because until governing bodies, corporations, financiers and promoters can be made to realize that success or failure of an undertaking so often depends on the quality of the engineering advice it receives, the value of that advice will not be properly appreciated; and when the public takes the larger view, to which I have referred, and seeks engineers' advice on other than strictly engineering questions, we will have approached

that position which will bring the proper standing and emolument to the members of our profession. It is comparatively a new field for concerted action, and, in consequence, it does not seem practicable to lay down any definite course that will land us at the goal. It would seem to be rather a case of seizing every opportunity that offers, either to the Society or to the individual, to work for that end.

Publicity of the proper kind is undoubtedly very important, and the action of those members in the Calgary branch, and of the committee of rate-paying engineers of Montreal, who gave much time and labor without compensation in a public service, should do much for our cause, and is an example of unselfish work for the gen-

eral good to be highly recommended to those who may have similar opportunities put in their way. Quite recently our past president, Mr. Tye, has presented a paper requiring a large amount of thought and labor upon a most important public problem. I am sure one of Mr. Tye's rewards will be the knowledge that he has brought the whole profession prominently before the public.

It must not be thought from the foregoing I am insensible to the public recognition already accorded to members of our profession. We were proud at the last annual meeting to congratulate three of our members who had been honored by knighthood for distinguished engineering and public services, and we know that other members are on important public commissions.

## Abstracts from Branch Reports, Can. Soc. C. E.

### QUEBEC

**M**EETINGS have been held as usual during the year. Great interest has been taken in the outcome of the society's efforts to have the principle of the employment of Canadian engineers by the Canadian government recognized and adhered to, and also in the results of the progress made by the Committee on Society Affairs appointed at the last meeting.

The newly elected officers are as follows:—

Chairman, A. E. Doucet; secretary, W. Lefebvre; members of branch council, A. R. Decary, J. E. Gibault and Altheod Tremblay.

### TORONTO

**T**HE Toronto branch had a fairly successful year in spite of the very unusual conditions caused by the war, approximately one-third of our total membership having enlisted for service overseas. During the year we added about 25 new members. We now have on our lists 50 members, 120 associate members, 30 juniors, 6 associates and 84 students.

We held nine evening meetings and one afternoon excursion to a work of engineering interest (the Toronto Filtration Plant).

One of the evening meetings took the form of a smoker and in others we endeavored to depart from the purely technical, and had subjects for discussion of more popular interest, the average attendance being forty-two.

At the beginning of the year committees were formed to work upon specifications and subjects looking to the advancement of the profession.

We have already forwarded to council the report of our Committee on General Clauses for Specifications, upon which a great deal of careful work was done. At the present time we have no other reports available for presentation.

The financial statement for the year shows a balance on hand of \$187, receipts for the year being \$342 and expenditures \$380.

The following officers were elected on January 11th for the year 1917:—

Chairman, E. W. Oliver; secretary-treasurer, L. M. Arkley; executive, H. G. Acres, A. H. Harkness, E. G. Hewson and T. T. Black. The retiring chairman, G. A. McCarthy, also acts as a member of the executive.

### OTTAWA

**T**HIS branch has had one of the most successful years of its history. By the practice of every possible economy consistent with efficiency, by doing without permanent headquarters, by confining our activities within reasonable limits of expenditure, we find ourselves at the close of 1916 out of debt and with a credit balance of about \$200.

Although we are still without permanent quarters we have had no trouble in making suitable arrangements for our evening and luncheon meetings. The Normal School auditorium, the board room of the Conservation Commission and the assembly room of the Public Library have always been at our disposal.

While it is considered exceedingly important from the point of view of the profession that our own members should be induced to relate their engineering experience and share with their fellow-members their practical knowledge of engineering difficulties and in the handling of men, we have felt that during the war it would be more fitting if we confined our papers and discussions to topics of a more popular and general nature which would be of timely and particular interest to the profession.

With many of our members overseas and most of the others, in their various capacities, carrying on extra work to assist the government in the present crisis, we have felt that there would be very little time for evening meetings for serious technical dissertations and discussions. We have, therefore, concentrated our effort on informal gatherings with a view to getting better acquainted with one another, with the affairs of the society, and with problems of general interest to the engineering profession.

We have been exceedingly successful. Ottawa engineers know one another to-day as they never did before. There has been a marked increase of interest in society

affairs, not only among members of the branch, but among non-members; and—very important—as a result of our activities during the year, there has been a very notable development of esprit-de-corps, and it is felt that the prestige of the engineering profession has been enhanced. One of the most potent influences in this connection has been our luncheon meetings, particularly the occasion of the address by the Rt. Hon. Sir Wilfrid Laurier on "The Engineer in Canada."

One of the greatest influences for developing general interest in society affairs has been the efforts of the Ottawa members of the Committee on Society Affairs, who have, by their carefully conscientious efforts to obtain the thought of the members of the branch respecting society affairs undoubtedly developed an intelligent active interest in our society which has not existed in the past, at any rate among the rank and file of the branch.

The branch arranged for a special qualifying course for officers in the Engineers, which was held during the months of February, March, April and May. The classes, which required a part of two afternoons and two evenings a week, were particularly well attended. While they were under way, the managing committee felt that it would not be wise to arrange for other meetings. During this period, however, the branch, at the request of the Sportsmen's Patriotic Association of Ottawa, arranged for a Sunday evening patriotic concert in the Dominion Theatre, which proved to be a very great success.

The meetings held during the past twelve months were as follows, all being luncheons excepting the first two mentioned:—

January 17th, Organization of Military Engineering Classes; January 21st, G. R. G. Conway, "The Engineer and Standards of Beauty"; January 13th, Dr. Adam Shortt, "The War and the Engineer"; E. A. Dunlop, M.L.A., "Trip to the Battle Front"; April 13th, Lieut.-Col. Melville, "With an Engineering Battalion at the Front"; October 19th, Prof. B. Bakhmeteff, "The Russian Engineer and the War"; November 23rd, Sir Wilfrid Laurier, "The Engineer in Canada."

In the last annual report reference was made to two amendments to the branch by-laws, which have subsequently been formally approved by letter ballot and put into force. The first provided for the enlargement of the managing committee to include the past chairman and past secretary for one year following their term of office, and the sitting members of council within the jurisdiction of the branch during their term of office. The change has provided for easy and direct communication between the executives of the main society at Montreal and of the branch. It has furnished continuity of direction of branch affairs between successive managing committees. Furthermore, it has made available to the branch the benefit of the considered judgment of members best qualified to advise and assist.

The second amendment provided that the fiscal year of the branch should be the same as that of the main society. From its organization in 1909 our branch year has remained from October to October. The change enables us to report to the main society for the same period for which the main society affairs are reported at the annual meeting.

A special effort has been made by our membership committee to induce worthy members of the profession to enter the society. Excellent results have been realized, fourteen new members being added.

The branch membership figures for 1914, 1915 and 1916 are given hereunder:—

	1914.	1915.	1916.
Honorary members .....	3	1	1
Members .....	46	51	60
Associate members .....	113	124	124
Associates .....	1	1	1
Juniors .....	28	33	36
Students .....	16	27	28
Ottawa associates .....	21	17	23
	228	254	273

Fifty-one of our members have enlisted for overseas.

The library and records of the branch have been placed in one of the most convenient office buildings of the city, and a librarian appointed. During the past year many important additions have been made to the library. Special efforts are now under way for indexing and classifying the lantern slides in the possession of the members and those which are in the possession of government offices but under the direction of members. Efforts are also being made to secure photographs or records of historical interest to the engineering profession.

The annual meeting of the branch was held January 11th, when the following officers were elected: Chairman, Alex. Gray; secretary-treasurer, J. B. Challies; Managing Committee—Gordon Gale, A. T. Phillips, W. F. M. Bryce, S. J. Fortin and J. H. McLaren.

## REGINA

THE arrangement entered into with the Regina Engineering Society to hold alternate meetings every first Thursday has been satisfactorily maintained. Ten joint meetings were held, five of which were presided over by the Regina branch, Can.Soc.C.E. There were also a number of executive and business meetings held by the branch itself.

Amongst the papers read were:—

"Reminiscences of an Old Surveyor," by Cyrus Carrol.

"Terminal Elevator Construction," by C. D. Howe.

"From Conception to Completion—the Western Railroad," by J. N. deStein.

Our membership comprises 7 members, 19 associate members, 2 juniors and 2 students. Total, 30—an increase of five over the previous year. Eleven are on active service.

During the year sixty dollars was received in rebates from the parent society, and a balance of twenty-six dollars is on hand.

The Regina branch, supported by all members of our society in this province, propose to extend its scope and form a "Saskatchewan Branch of the Canadian Society of Civil Engineers." We hope at the next annual meeting to be able to present a very satisfactory statement of this new subdivision of our society.

At the annual meeting, held December 4th, the following officers were elected: Chairman, L. A. Thornton; vice-chairman, W. R. Harris; secretary-treasurer, J. N. deStein; executive, E. G. W. Montgomery, R. J. Lecky and (ex-officio) O. W. Smith; auditors, D. A. R. McConnell and H. R. Mackenzie.

## MANITOBA

THE present membership of the branch is as follows: Members 37, associate members 83, juniors 21, students 29, local associates 54. Total, 224.

Eight meetings of the general section were held during the year at which the average attendance was thirty-two.

Eight meetings of the electrical section were held with an average attendance of thirty-two.

Three meetings of the mechanical section were held with an average attendance of forty-five.

The treasurer's report shows a credit balance of \$440.

The annual meeting of the branch was held December 7th, and the following officers were elected for the year 1917:—

Chairman, W. L. McKenzie; executive committee, J. C. Holden, H. W. McLeod and M. V. Sauer; auditors, B. S. McKenzie and T. L. Roberts; secretary-treasurer, A. W. Smith.

## EDMONTON

THE branch now comprises forty-five members, as follows: Members, 7; associate members, 29; associates, 1; juniors, 6; students, 2; total, 45.

Nine members are absent on active military service and others on other war service, consequently the average attendance was below that of the previous year.

The meetings were of an informal nature and were held monthly on the third Wednesday. Usually a paper was read, followed by discussion.

In February we had the privilege of entertaining F. C. Gamble, past president Can.Soc.C.E., at a banquet in the Macdonald Hotel.

The question of the employment of alien engineers on government work was taken up along the lines suggested by headquarters.

A provincial division was formally constituted by council, and negotiations in connection with the formation of this division are now being carried on with the Calgary branch.

The following meetings were held during the year 1916:—

January 19th, "The Individual Responsibility of Members of the Profession," by W. R. Smith; February 9th, Banquet to Mr. Gamble; February 16th, "Development of the Mountain Park Coal Fields," by N. M. Thornton; March 24th, "Panama-Pacific Exposition," by Prof. J. A. Allan; May 10th, Informal Dinner; November 3rd, Informal Dinner; November 15th, "Geological Problems of the Petroleum Resources of Alberta," by Prof. J. A. Allan; December 20th, "Past and Present Methods of Coal Mining," by N. M. Thornton.

The election of branch officers is held in May, those elected taking office the following October and remaining in office one year. The fiscal year closes in October. The election of officers for the season 1916-17 was as follows:—

Chairman, L. B. Elliot; vice-chairman, J. Chalmers; secretary-treasurer, C. A. Robb; executive, A. T. Fraser, J. L. Cote, D. J. Carter and D. Donaldson.

J. Chalmers and C. A. Robb resigned to take up duties with the Imperial Munitions Board, so J. D. Robertson was then elected as vice-chairman, and A. W. Haddow as secretary-treasurer.

## CALGARY

DURING the past year there were four general business meetings of the branch, including the annual meeting in December.

The executive committee held ten business meetings, and the Committee on Credentials and Applications held two meetings.

Four dinners were given during the winter, and the branch was entertained by five speakers, as follows:—

January 13th, A. J. Graves, "Administration of Public Utilities"; February 3rd, C. D. Howe, "Government Elevator Construction"; February 24th, Dr. J. G. Rutherford, "Some Thoughts on the Present World Situation" (Ladies' Night); March 16th, G. N. Houston, "Legislative Control of Engineering Practice"; March 28th, H. B. Muckleston, "Electrical Illumination of Panama-Pacific Exposition."

A statement of the finances on November 30th showed a balance of \$326.

The present membership of the branch is made up as follows:—

Members, 13; associate members, 30; juniors, 5; students, 1; local associates, 10; total, 59.

Nineteen members have enlisted for active service, two of whom were killed in action, and one is missing.

The following officers were elected for the ensuing year:—

Chairman, A. S. Dawson; secretary-treasurer, Sam. G. Porter; executive committee, H. Sidenius, M. H. Marshall, C. M. Arnold, and (ex-officio) F. H. Peters and William Pearce; auditors, J. S. Tempest and S. K. Pearce.

## VANCOUVER

DURING the year six papers were read, as follows:—

June 6th, "Some Remarks on Railway Location Problems in British Columbia," C. E. Cartwright; January 27th, "Vancouver Grain Elevator," C. D. Howe; February 1st, "City of Kamloops Power Plant and Pumping Station," H. K. Dutcher; March 2nd, "The Prince Rupert Drydock of the G.T.R.," Mr. Pillsbury; March 23rd, "The Bridges on the C.N.P. Railway," J. L. Harrington; April 13th, "Pneumatic Foundations," E. G. Matheson.

On September 25th a deputation from the branch interviewed Sir George Foster, asking, for the society, the support and recognition of the Dominion government and expressing the hope that one day the Dominion government would recognize and consult with the society on national engineering questions in the same way that the governments of Great Britain and the United States recognize and consult with the Institution of Civil Engineers and the American Society of Civil Engineers.

Arrangements have been made with the University Club, Vancouver, whereby the members of the society have the use of the club reading-room.

No papers have been arranged for the coming season as so many members are overseas.

## VICTORIA

NINE meetings were held during the year, with an average attendance of twelve. Six papers were read and discussed, as follows:—

E. Davis, "Rules and Regulations of British Columbia relating to Annual Rental of Water Powers"; C. E. Fowler, "Architecture of Bridges"; R. F. Hayward, "Mexican Light and Power Company's Development"; W. Young and W. C. Smith, "Domestic Water Supply of Greater Vancouver"; D. O. Lewis, "Marine Wood Borers"; Dr. Plaskett, "Construction of New

Dominion Observatory and Telescope on Little Saanich Mountain, Victoria."

Three applicants were elected branch associates, of whom two are now corporate members of the society.

Three corporate members and three branch associates have joined the overseas forces during the past year, bringing our known total up to twenty-five in the C.E.F., and of this number two corporate members have been killed in action during 1916.

The membership of the branch stands as follows:—

Members, 24; associate members, 33; juniors, 8; students, 1; branch associates, 9; total, 75, showing a decrease of four compared with last year's total.

The following officers were elected for 1917 at the annual meeting, held December 13th:—

Chairman, D. O. Lewis; vice-chairman, R. A. Bainbridge; treasurer, E. Davis; secretary, R. W. MacIntyre; other members of executive, E. G. Marriott, C. Hoard and (ex-officio) F. C. Gamble and H. W. E. Canavan; auditors, Lewis W. Toms and J. B. Shaw.

## CANADA'S RAILWAY PROBLEM AND ITS SOLUTION\*

OUR RAILWAYS SHOULD BE MORE CONSOLIDATED—LEAVE THE CANADIAN PACIFIC AS IT IS AND FORM NEW PRIVATE CORPORATION TO TAKE OVER C.N.R., G.T.R., G.T.P. AND TRANSCONTINENTAL

By WILLIAM FRANCIS TYE, C.E.,

Formerly Chief Engineer, Canadian Pacific Railway Co.

After a great deal of study of Canada's railway problem, the writer of this paper has arrived at the following conclusions:—

1. The National Transcontinental, the Grand Trunk Pacific and the Canadian Northern railways are unable to earn their operating expenses and their fixed charges. Canada has built, and is operating, the first of these roads, and Canada and the various provinces have guaranteed the principal and interest of most of the bonds of the other two. As the roads are unable to earn their fixed charges, they must, of necessity, be paid by the country.

2. The failure of these roads is due to the duplication of lines by all the railways, encouraged and bonused by the government; to the excessive cost of the Grand Trunk Pacific and National Transcontinental railways; to the failure of the Grand Trunk Pacific to provide itself with an adequate system of feeders in the west, and to the construction, by the Canadian Northern, of the long and unproductive stretches of road across British Columbia and Northern Ontario, without feeders, terminals, etc.

3. If the Canadian Northern, the Grand Trunk Pacific and National Transcontinental be maintained in two separate systems, it will cost at least \$400,000,000 to build the necessary branch line feeders and terminals, to provide them with adequate rolling stock, and put them in proper physical condition to compete with the Canadian Pacific.

4. It will be necessary that the Grand Trunk Pacific build five to six thousand miles of feeders in the west.

5. It will be necessary that the Canadian Northern build two to three thousand miles of feeders in the east, and terminals costing many millions in Montreal, Toronto, Ottawa, Quebec and Vancouver.

6. Canada has already sufficient railway mileage for years to come. The additional mileage necessary for these roads could only be had by duplicating existing lines. Such duplication of lines would only add to the burden to be borne by Canada in the way of subsidies, guarantees, etc., without doing the country any good.

\*Abstract of paper presented to the Canadian Society of Civil Engineers at Montreal, January 18th, 1917.

7. Canada has sufficient railway mileage and traffic for two good transcontinental systems—the Canadian Pacific and another—but not enough for three.

8. A consolidation of the Grand Trunk, the Grand Trunk Pacific, Transcontinental and Canadian Northern railways would give a well-balanced system. The Grand Trunk has an excellent system in the east, with terminals in all large and important centres; the Canadian Northern has not. The Canadian Northern has a good system of feeders in the west; the Grand Trunk has not. Each is strong where the other is weak. Combining them must, of necessity, be the most economical and efficient way of handling the situation.

9. Such a combination would not require more than \$100,000,000 to provide it with sufficient rolling stock and to put it in proper physical condition to compete with the Canadian Pacific.

10. The saving in capital cost would be at least \$300,000,000 and, at present rates of interest, the saving in fixed charges, at least \$15,000,000 per annum.

11. The Transcontinental cost \$100,000 per mile to build. The parallel Canadian Northern cost less than \$50,000 per mile, and is, in every way, as efficient an instrument of transportation. The Quebec bridge, with approaches, will cost \$40,000,000, and will not be necessary for many long years to come.

12. The Transcontinental, including the Quebec bridge, has cost Canada at least \$100,000,000 more to build than it would have cost the Canadian Pacific to build as efficient a road.

13. Including operating expenses and fixed charges, it costs the Canadian Pacific about \$70 to do \$100 worth of business. Including operating expenses and interest on cost, it costs the Intercolonial and the other Canadian government roads from \$200 to \$220 to do \$100 worth of business.

14. Canada should follow the wise example set by Sir John Macdonald when dealing with the Canadian Pacific in 1879-80, and form a new private corporation, with sufficient power and the necessary safeguards, to take over and consolidate the Grand Trunk, Grand Trunk Pacific, Transcontinental and Canadian Northern railways, and develop another Canadian Pacific, rather than to have the government take

them over and develop another and a vaster and more extensive Intercolonial.

15. Conditions for the formation of such a company are much more favorable than they were in 1880, as western Canada had not then been proven, as it since has been, to be capable of supporting a large and prosperous population.

16. Such a combination would start with gross earnings of at least \$100,000,000 per annum, with a probable average increase of 8 per cent. per annum, and probable net earnings of from \$25,000,000 to \$30,000,000 per annum, and a net revenue from other sources of about \$2,800,000.

17. Its fixed charges at consolidation would be about \$35,000,000, and it would be under the necessity of spending, in the first five to seven years, at least \$100,000,000 to provide rolling stock and to put its properties in good physical condition.

18. Deficits for some time to come would be inevitable, owing to the heavy fixed charges amounting to about \$35,000,000, as compared with \$10,300,000 per annum for the Canadian Pacific.

19. As these high fixed charges are caused by the excessive cost of government construction and by duplication of lines, bonused and guaranteed by the government, Canada must pay them.

20. The fixed charges would be at least \$15,000,000 less with one private system than with two, and very much less with private than with government management.

21. With such a combination as has been outlined, the series of deficits should not last more than five to ten years, after which the road should be very successful.

22. In order to control its policy, and to share in its certain prosperity, Canada should have an interest in the new company. The Dominion government should furnish 40 per cent. of the money required, own 40 per cent. of the stock, and appoint 40 per cent. of the directorate, but take no part in the actual management. This would give all the advantage of government control without any of the manifest disadvantages of government management.

23. Once this combination was successful, Canada should once and for all abandon the vicious policy of bonusing railway construction, either by gifts of money or land, or by the still more vicious policy of guaranteeing the bonds of railway companies of which it has no direct control.

The reasons for arriving at the foregoing conclusions are set out as follows:—

**Canadian Railway Problem.**—The Canadian railway problem is mainly connected with the Transcontinental railways. The Canadian Northern and Grand Trunk Pacific Railway Companies have reached a point where it is not possible for them to pay their fixed charges, or to finance their obligations. As the various Canadian governments have guaranteed the greater portion of the bonds sold to provide money for their construction, it is necessary for the government to either take them over, very largely aid the companies, or find some other method of solving their difficulties. The National Transcontinental, built and operated by the government, does not earn operating expenses, let alone fixed charges.

**Financial Conditions of the Railways.**—In order to arrive at a clear understanding of the problem, it is first necessary to briefly set out the financial situation of each company concerned.

**Canadian Pacific.**—The Canadian Pacific extends from St. John, N.B., on the east to Vancouver on the west. Its mileage is made up of:—

Main Line, Montreal to Vancouver .....	2,899 miles
Other lines, branches, etc. ....	10,094 "
<b>Total</b> .....	<b>12,993 "</b>

The annual report for the year ended June 30th, 1916, shows the following financial results on its operation for the year:—

Gross earnings .....	\$129,481,885
Working expenses .....	80,255,965
Net earnings .....	49,225,920
Fixed charges .....	10,306,196
Surplus .....	38,919,724
Surplus revenue .....	36,871,435

In addition it had:—

Other income .....	\$ 9,940,964
Making the total available for dividends ...	46,812,390

**Grand Trunk System.**—The Grand Trunk system extends from Quebec and Portland on the east to Chicago on the west, and to North Bay on the north.

Its mileage consists of:—

Miles of roadway .....	4,792 miles
Second track .....	1,060 "
<b>Total</b> .....	<b>5,853 "</b>

The annual report for the year ended December 31, 1915, shows the following results for the system:—

Gross receipts .....	£10,379,493
Working expenses .....	8,289,476
Net traffic receipts .....	2,090,017
Net revenue .....	2,540,701
Total fixed charges .....	2,030,017
Surplus for year .....	510,684
Equivalent to .....	\$ 2,487,031

**Grand Trunk Pacific.**—The Grand Trunk Pacific extends from Winnipeg on the east to Prince Rupert on the west. Its mileage consists of:—

Main line .....	1,746 miles
Branches .....	1,009 "
<b>Total</b> .....	<b>2,755 "</b>

The financial results of its operation for the year ended June 30, 1915, as shown by Railway Statistics of the Dominion of Canada, were as follows:—

1915.	
Gross earnings .....	\$6,660,584
Operating expenses .....	7,383,665
Operating loss .....	723,081
Total net loss .....	626,940
Fixed charges .....	6,385,604
Which would make total loss for year .....	7,012,544

In the Railway Statistics, from which the foregoing were taken, the fixed charges of the Grand Trunk Pacific (alone of all the private-owned roads) are not given. The bonds outstanding for the year ended June 30, 1915, are given as \$168,405,710.

It is understood that of these outstanding bonds £7,200,000 bear 3%, the balance 4% interest, which would make the fixed charges as shown.

**National Transcontinental Railway.**—The National Transcontinental Railway extends from Moncton on the east to Winnipeg on the west. Its mileage consists of:—

Main line .....	1,799 miles
Branches .....	194 "
<b>Total</b> .....	<b>1,993 "</b>

The road has only been operating from Moncton to Winnipeg a little over a year, and the financial results of its operation, for the year ended June 30, 1916, have not as yet been published.

It is believed that its gross earnings are about \$6,000,000, and that its operating expenses are in excess

of its gross earnings, making a total loss for the year about \$6,000,000.

Fixed charges of government-owned railways are not given in the Dominion statistics. They were arrived at in the following manner:—

The Stanton-Gutelius report shows the cost of the Transcontinental to be ..... \$180,000,000  
Figuring interest on this sum, and adding the deficits year by year shows the cost of the Transcontinental, exclusive of equipment, to be, in 1916 ..... 191,068,400

Interest at 3%, (the rate required by the Act), on this, amounts to \$5,732,052, which is, therefore, taken as the fixed charges.

**Intercolonial.**—The Intercolonial extends from Halifax on the east to Montreal on the west, and is owned and operated by the Dominion of Canada. Its mileage consists of:—

Main line .....	797 miles
Branches .....	694 "
<b>Total .....</b>	<b>1,491 "</b>

The financial results of its operations for the years ended June 30, 1913 and 1915, were as follows: all figures, except interest on cost, being taken from the Dominion Railway Statistics.

1913.	
Gross earnings .....	\$12,349,296
Operating expenses .....	12,510,312
Operating loss .....	161,016
Interest on cost to date .....	13,160,803
Which would make total loss for year .....	13,321,824
1915.	
Gross earnings .....	\$11,259,710
Operating expenses .....	11,348,756
Operating loss .....	89,046
Other income .....	180,778
Operating income .....	91,732
Interest on cost of construction to date .....	14,485,929
Which would make total loss for year .....	14,394,197

The cost of construction, including interest, not being given for government roads, this cost was taken from a series of most admirable articles on the Intercolonial, written by Mr. Samuel O. Dunn, editor of the "Railway Age Gazette." Mr. Dunn shows the actual cost, including interest, of the Intercolonial, was as follows:—

1912 .....	\$314,061,270
1913 .....	329,020,209
1914 .....	348,089,518

On the same basis the cost in 1915 would be:—  
1915 .....

.....	\$362,148,221
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Interest at 4% which Mr. Dunn estimates is the average paid by the Intercolonial, amounts to:—

1913 .....	\$13,160,808
1915 .....	14,485,929

**Canadian Northern.**—The Canadian Northern extends from Quebec on the east to Vancouver on the west and has, in addition, a small disconnected system in Nova Scotia.

As shown in the Railway Statistics it had, in 1915, a mileage of:—

Main line .....	1,177 miles
Other lines and branches .....	6,766 "
<b>Total .....</b>	<b>7,943 "</b>

It had, at that date, under construction, 1,538 miles of line, making its present mileage 9,481 miles.

The annual report shows the financial results of its operations for the year ended June 30, 1916, to have been:—

Gross earnings .....	\$35,476,275
Operating expenses .....	25,244,187
Operating revenue .....	10,232,088
Operating income .....	9,490,580
Fixed charges .....	10,391,163
Net loss .....	900,583

The foregoing shows a net loss of a little over \$900,000. It is, however, believed that the road has large floating liabilities, and at the date at which the foregoing statistics were submitted, that many miles of newly constructed lines had not as yet been taken into the system, and when its finances are put on an operating basis, that its fixed charges will be materially larger. In the following discussion it is assumed, that re-organization of its finances and completion of construction, will add \$3,000,000 to its fixed charges, making them \$13,400,000 per annum, but, at this date, no figures are available to prove, or disprove this assumption.

From the foregoing it will be seen that the Canadian Pacific has been a great financial success. The Grand Trunk has been a moderate financial success. The Canadian Northern has been a financial failure; and the Transcontinental, the Grand Trunk Pacific and the Intercolonial have been great financial failures.

The problem which now confronts Canada is to find a remedy for the unsatisfactory state of affairs shown by all the roads, except the Canadian Pacific.

(To be continued in the next issue.)

### EXPORTATION OF ELECTRICITY.

An unusually interesting and instructive article on "The Exportation of Electricity from Canada," appeared in *The Canadian Engineer* of January 11th. This article was from the pen of Mr. Arthur V. White, consulting engineer to the Commission of Conservation, Canada, and to the International Joint Commission, Ottawa and Washington—Lake of the Woods investigation. It originally appeared in the recent annual number of *The Monetary Times* and on account of its great value was reproduced in these columns. In the republication of the matter a portion of one of the paragraphs was inadvertently omitted. This paragraph should read:—

In 1891, Mr. E. B. Borron, in making his report to the Ontario government on the lakes and rivers, water and water powers of the province of Ontario, drew special attention to the fact that Ontario has no true coal. Mr. Borron stated:—

"Thus it will be seen that in respect of fuel and consequently of steam power, Ontario occupies on this continent a very unfavorable, one might say, unenviable position, as compared with the maritime provinces and British Columbia, and with many, if not most, parts of the United States, and still worse as compared with England, Belgium and other great manufacturing countries in Europe. As was well said in *The Monetary Times* a few days ago, 'Ontario has to import her motive power, and the Dominion commits the folly of taxing it.' To which might have been added, 'with the possibility of being denied even that poor privilege, should at any time commercial intercourse with our neighbors to the south be suspended or interrupted.'"

# CANADIAN SOCIETY OF CIVIL ENGINEERS

REJUVENATION, RESEARCH AND RECOGNITION WERE THE MAIN TOPICS OF DISCUSSION AT THE THIRTY-FIRST ANNUAL MEETING IN MONTREAL LAST WEEK.

**R**ESearch of importance has been and is being done by members of the Canadian Society of Civil Engineers. But far more research work must be done to aid in winning the war and, especially, to

settle satisfactorily the many difficult problems to be met after the war. Through these research activities the Society will be brought into contact with national affairs and those who direct them, and thus will come RECOGNITION, the pinnacle toward which the profession in Canada has struggled continuously for thirty years past. But to make research effective and recognition certain, REJUVENATION must come first,—rejuvenation of individual effort, interest and enthusiasm on the part of every member.

That sums up the trend of thought of the civil engineers who attended the thirty-first annual meeting of the Canadian Society of Civil Engineers at Montreal last week. Those sentiments were directly or inferentially reflected in almost every speech made at the meeting. "Rejuvenation, research and recognition" might be said to have formed the slogan of the members.

Great interest was exhibited throughout the three business sessions. Everyone was "up on his toes." Feeling ran strong, and—at times—so did language. But throughout it all was harmony of effort in striving toward the one goal,—increased usefulness of the

Society to its members, and of the Society to its country. The meeting was largely in the hands of two very forceful and businesslike individuals—George Herrick Duggan, the retiring president, and John Stoughton Dennis, the president-elect. Both are men of action, accustomed to swing big things and to push them along with dispatch. Immediately after the meeting had been called to order at 10:20 a.m. Tuesday, January 23rd, Mr. Duggan assigned time for discussion of society affairs, and expressed a desire to complete the business on Wednesday if at all practicable.

"Let's get through with this in two days instead of three," he said. And they did. For the first time in the

Society's history the meeting was concluded in two days. Yet nothing was left undone—the entire program was carried through and much that was not on the program—and probably more beneficial discussion was evolved than at many other annual meetings.

In pushing things through in this way Mr. Duggan had a very able assistant in the president-elect, Colonel Dennis. From the moment he first spoke, the members knew that Col. Dennis intended to put some of his western "pep" into the meeting. It was generally prophesied that 1917 is going to be a year of real activity in society circles.

**Tuesday Morning Session.**—One hundred members were present when Mr. Duggan called the meeting to order, but this number was about doubled later on. Prof. C. H. McLeod, the secretary, read the minutes of the last annual meeting. Adopted.

President announced changes in program, as noted above.

President appointed the auditors of the Society, Messrs. Riddell, Stead, Graham and Hutchison, chartered accountants, as scrutineers, thus following the new precedent established last year.

After quite a little discussion as to the order to be followed in the newly arranged two-day program, this was settled satisfactorily to all parties concerned, and the reports of council and council's committees were received. Discussion on

these was adjourned till the afternoon session, to be merged with the discussion on the progress report of the Committee on Society Affairs.

R. A. Ross, chairman of the Finance Committee, presented the following report:—

"Supplementing the annual statement of the auditors, the Finance Committee submits a table (see next page) showing receipts and expenditures for the last ten years, upon which they have the following comments to make:—

"1st. It will be noticed that the total receipts for 1916 are about \$1,000.00 in excess of the next highest year, namely, 1912.

## The 1917 Council

### President

Col. John Stoughton Dennis

### Vice-Presidents

A. St. Laurent, Ottawa

T. H. White, Vancouver

J. M. R. Fairbairn, Montreal

Col. C. N. Monsarrat, Montreal

### Past Presidents

M. J. Butler, C.M.G., Montreal

F. C. Gamble, Victoria

G. H. Duggan, Montreal

### Treasurer

E. Marceau, Montreal

### Secretary

Prof. C. H. McLeod, Montreal

### Councillors

J. R. W. Ambrose, Toronto

C. B. Brown, Moncton

S. P. Brown, Montreal

W. G. Chace, Winnipeg

A. R. Decary, Quebec

A. A. Dion, Ottawa

H. Donkin, Halifax

A. E. Doucet, Quebec

T. A. J. Forrester, Quebec

Walter J. Francis, Montreal

J. H. Kennedy, Vancouver

N. J. Ker, Vancouver

E. D. Lafleur, Ottawa

D. O. Lewis, Victoria

Horace Longley, St. John

G. A. McCarthy, Toronto

William Pearce, Calgary

D. A. Ross, Winnipeg

R. A. Ross, Montreal

H. R. Safford, Montreal

Julian C. Smith, Montreal

A. Surveyer, Montreal

J. L. Weller, St. Catharines

James White, Ottawa

"2nd. That the expenditure for 1916 corresponds very closely with that for 1912, in spite of the fact that our franking privileges have been cancelled, postage rates increased.

"3rd. One essential difference between those comparable years, 1912 and 1916, is that during the latter year the arrear collections were something over twice those of 1912. On the other hand, the entrance fees in 1912 are very much larger than 1916.

"4th. The moral of the above is that every effort will have to be made to increase the membership, which will assist doubly by increasing current as well as entrance fees."

Mr. Ross said that there should not be too much rejoicing at the credit balance shown in this year's report as it was due entirely to the arrears collected, and that after the "clean-up" of this item that had taken place in 1915 and 1916, the Society is hardly likely to be able to collect nearly so much on this item again.

Walter J. Francis said that Mr. Ross had brought in a splendid report despite the Finance Committee's rather pessimistic report of last year, and despite the fact that no dues are charged to the 687 members who are in active military service.

The reports of branches were read and accepted. These are summarized on other pages of this issue. It was remarked that there was no report from the British Columbia Division and some disappointment was expressed at the seeming lack of interest shown by that Division after the enthusiasm with which it was launched last year.

Prof. H. E. T. Haultain suggested that the rebates to branches be reduced and stated that the Toronto members would be satisfied with smaller rebates. The new chairman of the Toronto Branch, E. W. Oliver, tactfully refused to commit the branch to any suggestion along this line, however, and the matter was dropped.

At 11:30 a.m. the report of the Conservation Committee was received, and the remainder of the session was occupied by its discussion. James White, chairman of the committee, and deputy head of the Commission of Conservation of Canada, read the report, abstract of

which was printed in *The Canadian Engineer*, page 59, January 18th issue. He also read a letter from W. H. Breithaupt, of Kitchener, Ont., referring to the town-planning projects now being undertaken by Kitchener, Waterloo, Brantford, Ottawa, etc.

Mr. White referred to an address recently given by Lionel Curtis, in which Mr. Curtis professed belief that Canada would be flooded with British labor after the war, and that it would be a grave matter if these immigrants were to be allowed to mass in the cities. In South Africa, after the Boer war, the country could not absorb the flood of immigration, and a large part of the disfavor in which South Africa was for some time held in Great Britain, was the result of that fact.

Mr. White suggested that each community be requested, or even required, to absorb at least the number of men it sent to the war, restoring them to their old positions or equal ones.

These remarks brought on a brief discussion of after-the-war problems, and M. J. Butler, C.M.G., enquired whether the Honorary Advisory Council for Scientific and Industrial Research (hereafter called the "Research Council" for brevity), recently appointed by the Department of Trade and Commerce, intended to help the manufacturers on specific problems. In other words, would they get into such position that manufacturers could turn over definite, practical problems to them for solution?

R. A. Ross, who is a member of the Research Council, explained in a very clear-cut and convincing manner just what the Research Council is doing. He said that there is a fund of information buried in the government files and that they intend to disinter it and correlate it to the point of real usefulness. A census is also being taken to reveal where and what the raw material problems are, and in this the manufacturers must help the Research Council if they wished to be helped later on by the Research Council.

Adverting to the discussion on the Conservation Committee's report, Walter J. Francis intimated that the committee's work overlapped the work of the Commission of Conservation, and therefore was not conservation at all.

RECEIPTS AND EXPENDITURES—CANADIAN SOCIETY OF CIVIL ENGINEERS.

Receipts (in Dollars).

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Arrears collected .....	2,023	2,390	2,023	4,031	2,092	2,887	1,994	3,298	6,733	6,512
Current fees .....	6,102	7,089	7,963	9,491	11,893	13,897	15,037	15,616	12,438	13,176
Advance fees .....	144	203	376	134	288	158	186	270	139	153
Entrance fees .....	1,450	2,010	2,190	2,124	2,779	4,077	4,169	2,895	2,233	2,485
Total .....	9,719	11,692	12,552	15,780	17,052	21,019	21,386	22,079	21,543	22,326
Interest received .....	86	99	211	252	187	1,393	894	315	450	429
Miscellaneous receipts .....	623	630	188	79	174	341	225	172	87	972
Total .....	10,428	12,421	12,951	16,111	17,413	22,753	22,505	22,566	22,080	23,727

Expenditures (in Dollars).

Interest paid .....	—	—	—	—	—	854	1,695	1,201	1,200	1,200
Printing and stationery .....	3,608	4,055	4,902	6,268	3,757	6,865	6,416	10,551	5,970	6,691
Salaries and wages .....	3,485	4,633	4,042	3,845	4,714	5,195	4,906	5,652	4,909	5,180
Taxes and water .....	224	226	244	244	247	848	1,466	1,448	1,280	1,300
General expense .....	2,192	2,515	2,760	2,670	4,198	4,307	5,257	4,812	4,151	3,260
Branch societies .....	—	544	374	648	1,118	2,810	2,121	2,296	2,266	2,454
Total .....	9,509	11,973	12,322	13,675	14,034	20,879	21,861	25,960	19,776	20,085
Excess receipts .....	919	448	629	2,436	3,378	1,874	646	—	2,304	3,642
Excess expenditures .....	—	—	—	—	—	—	—	3,394	—	—

He suggested that the committee be discontinued, and, as previously stated by Mr. White, this was the view of some of the committee's own members though not his own view necessarily.

J. B. Challies urged that the committee devote its attention to straightening out "kinks" and overlapping between existing bodies, commissions, government departments, etc., such as in the correlation of reports, the division of territories to be covered and duties to be performed, etc.

Mr. White said that the Commission of Conservation is poorly named. It should be the Commission for the Economic Development of Canada, as that is its real work.

The meeting decided to continue the committee, with Mr. White as chairman, but to reduce the number of its members in order to get a more efficient working body, twenty-three being considered too many.

The session then adjourned till 3 p.m.

**Tuesday Afternoon Session.**—The presidential address, an abstract of which is presented on page 95 of this issue, was read by Mr. Duggan.

Prof. H. E. T. Haultain read the progress report of the Committee on Society Affairs, both he and Mr. Oliver, the secretary of the committee, outlining the organization of the committee, the letters sent out by them to the membership, and the consensus of opinions shown by such replies as were received.

Some discussion arose as to whether adoption of the committee's progress report would bind the Society to the definite carrying out of all the committee's recommendations, and whether such adoption would be tantamount to instructing the council to put the machinery in motion to carry out those recommendations.

The general opinion was against giving definite and final instructions on so many matters of grave import to the Society upon such short notice and with such short time for thorough discussion, and even Prof. Haultain and Mr. Oliver urged that this be not done, as there were many different ways in which some of the recommendations could be made effective, and the committee wanted further time to investigate so as to be able to make a more complete report at the next annual meeting. All

the committee members desired to know was whether they are working along the right lines and whether the meeting approved of the directions in which they are turning their efforts. If so, the details could be worked out and submitted later.

The meeting expressed approval of all the tentative recommendations excepting one which suggested a change in the Society's name.

The committee had recommended "Canadian Institution of Civil Engineers" instead of "Canadian Society of Civil Engineers." It was thought that the word "Institution" would help in getting government grants, and also would follow the British style of name.

Prof. Haultain said that the committee had not been unanimous in making this recommendation. He, himself, for instance, preferred a more radical change and advocated dropping the word "civil" so as to get more mining, mechanical, chemical, electrical and other engineers into the Society.

A. A. Dion said that the word "civil" is being used by the Society in its antiquated sense of "non-military," and that the Society embraces now and wants to embrace all classes of engineers in Canada. But not all dictionaries give that definition to "civil engineers," said Mr. Dion. Colleges and universities to-day have courses in civil, electrical, mechanical engineering, etc., and the word "civil" there has a much narrower meaning than that in which the Society is now using it. And most people take the narrower meaning of the word. In other countries there are societies of civil engineers, societies of mechanical engineers, societies

of electrical engineers, etc., and to the people of those countries "civil" means civil in its narrower sense.

So, said Mr. Dion, many engineers in Canada who are not interested in steel and concrete, sewers and roads, dams and bridges, and such work, are holding aloof from the Society. The question is whether to encourage the formation of other societies or to merge all in one. He was in favor of the latter.

Prof. Haultain said his interest in the Canadian Society of Civil Engineers is in the usefulness it can show to the mining engineers. There is now a Canadian Min-

## "For Valor"

Following is a list of the decorations that have been conferred upon Canadian Society of Civil Engineers members so far as information has reached the secretary. Members will confer a favor by reporting any omissions:—

Name.	Rank.	Decoration.
<b>Members</b>		
Hesketh, J. A.	Lt.-Col.	D.S.O.
Macphail, J. A.	Lt.-Col.	D.S.O.
Meurling, H. F. M.	Captain	Military Cross
Mitchell, C. H.	First Staff Officer 2nd Brit. Army	Officer's Cross of Legion of Honor
Ramsay, C. W. P.	Lt.-Col.	C.M.G.
Wilkin, F. A.	Major	D.S.O.
<b>Associate Members</b>		
Bodwell, H. L.	Major	D.S.O.
Cosgrove, John R.	Lieut.	Military Cross
DeLancey, J. A.	Captain	Military Cross
Hertzberg, C. S. L.	Lieut.	Military Cross
Hertzberg, H. F. H.	Captain	Military Cross
Irving, T. C., Jr.	Major	D.S.O.
Klinger, L. W.	Lieut.	Military Cross
Leckie, R. G. E.	Brig.-Gen.	C.M.G.
LeCointe, P.-L. P.	Corp.	Croix de Guerre
MacLeod, Geo. W.	Major	D.S.O.
Mulock, R. H.	Flight Sub.-Lt.	D.S.O.
Perry, K. M.	Major	D.S.O.
<b>Juniors</b>		
Anderson, G. F.	Lieut.	Military Cross
Ferris, C. B.	Sergt.	Croix de Guerre
Junkin, R. L.	Lieut.	Military Cross
Powell, R. W.	Lieut.	Military C. & Bar
Spencer, R. A.	Captain	Military Cross
Turner, G. R.	Lieut.	Military Cross
<b>Students</b>		
Creasor, J. A.	Lieut.	Military Cross
Johnson, G. A.	Lieut.	Military Cross
Merston, W. C.	Lieut.	D.C.M. & M.C.
Urie, H. R.	Lieut.	Military Cross

ing Institute, but that body includes mining brokers, etc., and is not a professional body in the same sense as is the Canadian Society of Civil Engineers. It is a trade body, and in order to attain professional standing its engineering members should join the Canadian Society of Civil Engineers. But a group of men is at work now trying to remodel the Canadian Mining Institute into a professional body, and the Canadian Society should drop the word "civil" and get these miners in before they make their own institute self-sufficient and so be lost forever to the Canadian Society of Civil Engineers, which, under that title, would never be very attractive to many mining engineers.

Prof. Haultain urged a change of name to "The Canadian Institute of Engineers," and R. A. Ross agreed with him from the viewpoint of the electrical engineer.

George A. Mountain said that it was he who first suggested the change of "Society" to "Institution." But he had never suggested dropping the "civil," and he was in favor of retaining "civil" in the title if the society, or institution, never got a dollar of government money, and he would rather have the name as it is than change it to "institution" without the "civil."

George A. McCarthy suggested that the matter be sent on to the various branches for discussion, with a letter ballot of the membership to be taken afterwards by council. Col. Anderson moved that the matter be referred back to the committee to lay before the members as Mr. McCarthy suggested. Carried.

Discussion of report of council, adjourned from the morning session, was completed. Col. Dennis referred to the work some members have been doing in meeting national problems. He said that Mr. Tye's address, presented very recently before the Montreal members of the Society, is a most valuable contribution to one of the greatest problems confronting Canada to-day,—the transportation problem. Mr. Tye's paper has put the problem within reach of everyone. It was an exceptionally able paper, and the Society can strengthen its position by giving publicity to contributions of this kind. Another noteworthy effort by members of the Society was a memorandum on industrial preparedness of which he had been given an advance copy and which had not yet been made public. This was a purely voluntary effort by certain members of the Society to help in dealing with some of the greatest problems the Dominion ever had to confront, and it, too, should be published at once.

The meeting adopted the report of council and adjourned till 3 p.m., Wednesday, January 24th.

**Tuesday Evening Entertainment.**—At 7 p.m. an informal dinner was served in the University Club, complimentary to visiting members. No speeches were made. The only toast was to the King. At 8:50 o'clock the diners crossed the street to the Society's building, where a "smoker" was much enjoyed. Through the efforts of the entertainment committee, Messrs. Duchastel, Beaubien, Black, DeCew, Mattice, Tennant and Wilson, various vaudeville talent had been secured, and the members were entertained until a late hour.

**Wednesday Morning Trip.**—Special cars left the Windsor Hotel at 9 a.m. Wednesday, taking 125 members to the munitions plants of the Dominion Bridge Co., the Montreal Ammunition Co., and the Dominion Copper Products Co. All departments of these huge works were inspected by the visitors who were greatly interested in all the up-to-date methods for shell manufacture. Returning, the cars left Dominion, P.Q., at 12:20, arriving at the Windsor Hotel about 1 o'clock. The companies

whose works were visited entertained the party at luncheon at the hotel. George A. Mountain moved a vote of thanks to the companies. Phelps Johnson replied, saying that he hoped they would be able to shut down on the munition work just as soon as possible. He hoped the war would soon come to a successful conclusion. After the war the Dominion Copper Products Co. would probably be continued to manufacture other copper products.

**Wednesday Afternoon Session.**—Reception of reports of committees was continued. J. C. Parker presented the report of the Committee on Roads and Pavements, and asked that Appendix II. (see page 65, January 18th issue of *The Canadian Engineer*), the specification for sand, gravel and crushed stone, be adopted; and that Appendix I., the list of pavements reported, and Appendix III., the tentative specification for asphaltic materials, be received but not adopted, pending further report upon them at the next annual meeting.

Prof. Brown enquired whether the specification for sand, gravel and crushed stone overlaps the standard specification for concrete and reinforced concrete now in use by the Society. Mr. Parker said that the only place in which the two specifications overlap is in the grading of the concrete sand. The concrete committee specified the sand to pass through  $\frac{1}{8}$ -inch screen, while the roads committee specifies  $\frac{1}{4}$ -inch screen. The mortar tests were those adopted by the American Concrete Institute in their specifications for concrete roads and alleys.

Walter J. Francis urged that there be a conference of the two committees before adopting this specification, as it would be unfortunate if two standard specifications of the Society should conflict. At this point the secretary read a telegram from W. G. Chace, of Winnipeg, saying that clauses 3—1 and 3—2 of the sand specification would give coarse sands, wasteful of cement.

J. R. W. Ambrose asked if the specification follows the line of maximum density found by Mr. Davis, of the Toronto-Hamilton Highway Commission, in his experiments on this subject. Mr. Parker replied that this specification follows all United States specifications for sand for pavements. "Twenty-five per cent. passing 50-mesh sieve, and 5 per cent. passing 100-mesh sieve," is in all United States specifications, said Mr. Parker, the general feeling being that coarser sand would be desirable.

Mr. Parker urged that these specifications be adopted and used until something better is found. He said they are very open. A great variety of sands from very good to very bad will meet these requirements. There are a number of experiments being tried out in the United States, using fineness modulus, uniformity coefficient, etc., and it is desirable to wait and see how these work in practice. Meanwhile, there is a crying need for some guide for engineers in this country, and this specification is good enough to fill the bill for this year.

P. B. Motley asked that the adoption be deferred. Mr. Chace had made very extensive field and laboratory tests of sands. Had the committee considered those experiments? The Concrete and Reinforced Concrete Committee intend to study Chace's experiments to improve on their own specification. The sand specification now offered does not agree with that of the American Society for Testing Materials, or of the Canadian Society's Concrete Committee. It is not the standard specification of any United States scientific body.

J. A. Jamieson said it would be a decided mistake to adopt any hard and fast specification for sand for any class of concrete work, as in some parts of Canada it is

very difficult to get sand to meet these specifications without going to greater expense than would be required by the use of more cement to fill the voids.

Mr. Parker said the committee had borne that fact in mind and had stated in their report that this specification would not be applicable to certain districts. This specification is merely a guide.

Prof. Brown said that concrete pavements may require quite a different specification than other concretes, and that a concrete that would be suitable in a street might not at all be suitable in a building. Mr. Jamieson replied that concrete is concrete, whatever its use, and varies only in the sizes and proportions of the aggregates.

Geo. A. Mountain approved of the specification as one of the best that had ever been presented to the Society and said it should not be referred back, but should be adopted and recommended to all members for general use. Prof. Haultain saw no objection to its adoption, provided that it would be made quite clear that it is for roads and pavements only, so that nobody would confuse it with specifications for similar materials for other classes of work.

Mr. Parker stated that the value of grading sand from  $\frac{1}{8}$ -inch could be determined only by much further experimental work. The work has now been done from  $\frac{1}{4}$ -inch, and the additional experiments cannot be performed in the period of the next year. The specification is intended to evoke discussion among the members and is not meant to be used unqualifiedly. No doubt it will not be a satisfactory specification ten years from now, but it can be changed any year.

J. R. W. Ambrose said that it was such a satisfaction to get so definite a specification and report from any committee of this Society that he thought it would be a shame to refer it back. The committee had made exhaustive tests and experiments and the Society should adopt the specification.

The president suggested that the specification be labeled "Tentative," but Mr. Mountain said every specification is tentative until something better is produced.

M. J. Butler, C.M.G., called attention to the use of the word "graded," which, he said, is a dangerous word in any specification if used in such a way that some may interpret it as requiring an artificial grading. It is an ambiguous word that implies that something must be done with sieves.

Mr. Parker moved that the specification be adopted and the committee continued. Carried. Moved that the remainder of the report (Appendices I. and III.) be received. Carried.

*Electro-Technical Report.*—Prof. Herdt moved that the report of the International Electro-Technical Commission Committee (summarized on page 59, January 18th issue, *The Canadian Engineer*) be adopted and the committee continued. Carried.

*Steel Bridge Specifications.*—P. B. Motley presented the report of the committee on steel bridge specifications and moved that the committee be continued for the year, but that it be reconstituted as outlined in its report (see page 59, January 18th issue, *The Canadian Engineer*), all members to be named by March 1st, the council then naming a representative for any branch that might have failed to do so by that date.

J. R. W. Ambrose expressed disappointment at the committee's report. He said this committee includes nine of the leading bridge engineers in this country and should have gotten out something better.

Geo. A. Mountain said there should soon be a standard Canadian Society specification for steel bridges. There are now three or four in use and there is no accord. The Canadian Pacific uses their own, the Grand Trunk Pacific and Canadian Northern use the Dominion Government's specification, while the Grand Trunk Railway uses the American Railway Engineering Association's specification. In some of them it is often difficult to tell whether impact is included or not, etc.

C. M. Goodrich said that a highway bridge specification is more difficult than a railway bridge specification, and intimated that the members should have patience with the committee.

Geo. A. McCarthy and Walter J. Francis both approved of the committee's work. Mr. Francis said that very fruitful discussion had been brought out at the Montreal meeting, at which the draft specification had been presented.

Mr. Motley said that a highway bridge specification is four times the size of an ordinary railroad bridge specification and could not be disposed of in one year by a committee like the present one.

F. P. Shearwood referred to a question on which the committee members had differed. The question is whether practically to design the bridge in the specification, or to leave as much latitude as possible to the engineer. He requested the annual meeting to instruct the committee to prepare a specification that would ensure safe bridges and economy of material, but that would not restrict the engineer unduly in his design. The consensus of opinion was that the meeting should not interfere in this manner in a subject that should be settled by the committee.

Geo. A. Mountain said the Dominion Government, the Ontario Railway and Municipal Board and the Alberta Government all have separate and varying specifications, and that undoubtedly other provinces will follow. He hoped that this movement toward a multiplicity of specifications would very soon be checked by the Canadian Society's issue of a standard specification, and that he would recommend its adoption by the Dominion Railway Board just as soon as it is issued.

J. S. Dennis moved that the committee be continued and be requested to submit a draft specification to the next annual meeting, and that meanwhile their existing draft be mailed to all branches for discussion. Carried.

The question of personnel of the committee arose again. M. J. Butler, C.M.G., said that the reason for naming the committee in its present form is obvious. If this committee, constituted as it is, brings in an unanimous report, its specification will at once become standard with the C.P.R., the Grand Trunk, the Railway Board and all other interests represented. He would be sorry to see one name off. J. S. Dennis said, "Absolutely so." Geo. A. Mountain asserted that no better committee could be gotten together than these nine men.

P. B. Motley replied that the committee is not representative of the branches. In each branch, if there is not a bridge engineer, there surely is at least a near bridge engineer, and the provincial officials can be consulted by that representative. Montreal is the centre, and the main work of the committee should be done there, he thought, but not one man should be left on the committee who had ceased to be active in its work.

J. S. Dennis concurred in the idea of provincial representation so as to get all the provinces interested in one specification. Each province now decides upon

its own bridges. The provincial representatives on the committee could add the suggestions of the local branches regarding highway bridges. A reconstituted committee that would take in those men would bring in something acceptable to everyone,—to provincial bodies as well as national. Leave the present committee stand but add a representative for each branch.

Geo. A. Mountain: "Too large for effective work."

J. S. Dennis said Alberta has a good specification for highway bridges that had been prepared when he was chief engineer for the Northwest Territories. When Alberta had been created, the provincial minister adopted the specification. Col. Dennis had asked various bridge engineers to prepare a short specification. These were studied and assembled by the Public Works Department, and the result—not any one man's work but an assemblage of the best suggestions from everyone—had been passed on to Mr. Cooper, one of the best-known bridge experts in the United States, and thus was secured an excellent specification. The men in the western provinces know how this specification came about and their opinions should be obtained and see how they fit in.

Walter J. Francis announced that the Province of Alberta had last week adopted a new specification based largely upon the work of the Society's committee. Mr. Butler: "Well, that is news, of course, if it happened only last week."

Moved that the committee be continued just as at present, but with authority to add to its numbers the representatives of the branches. Carried.

*Educational Requirements.*—Prof. H. M. Mackay moved the adoption of the report of the Examining Board and Committee on Educational Requirements. Carried.

*Sewage Disposal and Sanitation.*—A. Surveyer, chairman of the Committee on Sewage Disposal and Sanitation, presented the following report:—

"It was decided last year that sub-committees of this committee should be formed in each province in order to approach the different boards of health in an effort to induce them to adopt some of the suggestions made by your committee in 1915 and approved by the annual meeting.

"With this end in view Messrs. Andrew F. Macalium, A. J. McPherson, W. Muir Edwards and C. H. Rust were appointed chairmen of the sub-committees for Ontario, Saskatchewan, Alberta and British Columbia, respectively, the Quebec sub-committee consisting of Sir John Kennedy, Messrs. Théo. J. Lafrenière, R. S. Lea, W. S. Lea, J. O. Meadows and Arthur Surveyer.

"On the 23rd of June a delegation from this sub-committee met by appointment the Superior Board of Health of the province of Quebec and urged upon the board the advisability of amending the Quebec Public Health Act so as to embody the following suggestions:—

"That at least two engineers should be members of the Quebec Superior Board of Health.

"That all reports or plans submitted to the board should be signed by an engineer qualified to practice in the province of Quebec.

"That rules should be drafted to cover the preparation and submission of projects.

"That no by-law providing for the raising of money for the construction, alteration or extension of any works coming under the jurisdiction of the board of health should be submitted to the votes of the electors without first being approved by the board of health.

"That extensions or alterations to existing works should be submitted to the board of health for approval, just the same as new works.

"Our delegation was well received by the board of health and consideration was promised. Since that date the term of office of three of the members has expired. Mr. R. S. Lea, member of the society, was reappointed on the board, but, notwithstanding the fact that we urged by letter upon the president of the Superior Board of Health the advisability of filling one of the two other vacancies by an engineer, two doctors were appointed. The personnel of the board remains as heretofore, viz., eight doctors, one dentist and one civil engineer. It is fair to say, however, that the appointments are made by the Governor-in-Council and not directly by the Superior Board of Health.

"At the last session of the Quebec legislature the Quebec Public Health Act was amended, but none of the amendments were in the line of our suggestions except one, which followed to some extent our last recommendation. It is the writer's belief, however, that the members of the board of health had already decided that this amendment was desirable before we approached them.

"Since our visit we understand that the board of health has taken up the study of regulations to cover the preparation and submission of projects. We cannot, however, claim very great success, as our most important recommendations have not been acted upon. It is possible, however, that although loath to take the initiative, the Superior Board of Health might adopt a neutral attitude towards some of these recommendations if the Society were to bring them up to legislature as amendments to the Public Health Act. The question which this meeting has to decide is whether or not the Society, following up its last year's manifestations of interest in public affairs, should move a step further ahead and offer amendments to the laws of the country when it feels that these amendments are for the general welfare of the community."

It was moved that the report of this committee be received and that the council be instructed to appoint a Committee on Legislation to deal with this question and with other similar questions. Carried.

*Concrete and Reinforced Concrete.*—Walter J. Francis, chairman of the Committee on Concrete and Reinforced Concrete, said that the committee had done a good deal of work this year, but had nothing definite to report. They had received very exhaustive suggestions from the Toronto Branch. What they had been hoping for was that some authoritative body in the United States would issue a specification on concrete and reinforced concrete, but none had been forthcoming. There are some things in the specification which they would like to remodel when the time comes. The committee would like to have suggestions filed during the year and they would be considered for the next report.

Mr. Francis was asked whether the Joint Committee on Concrete of the various American societies had not recently brought down a specification. He said they had made a report, but had not issued a specification, and that they had evidently been stuck on the same matters as had the committee of the Canadian Society.

J. R. W. Ambrose enquired whether the Canadian Society has to wait for another body to issue specifications. Why were not the Toronto branch suggestions laid before the annual meeting as a basis for criticism?

Mr. Francis explained that he had received one or two complete sets of specifications from the Toronto

branch, but that the committee would like to keep them under advisement to use as suggestions for the coming year.

Mr. Ambrose called attention to the fact that the Toronto branch suggestions were already one year old and that there should have been plenty of time for their consideration and discussion.

"The Canadian Society has not waited upon other bodies in this matter," said Mr. Francis. "We took the lead and issued the first definite specification ever published for concrete and reinforced concrete. There have been reports by American societies, but not in definite specification form." Mr. Francis said that some of the clauses of the Toronto specification were the same as the Society's standard specification with the exception of phraseology.

"The committee is to be congratulated upon its former activity," said Mr. Ambrose, "but the suggestions made in the past year should have been laid before this meeting." Moved that the committee's report be accepted and the committee continued. Carried.

*General Clauses.*—No member of this committee was present and no report was received. Col. Anderson moved that the committee be continued. Mr. Oliver objected to the continuation of a committee that did no work. Mr. Butler said he knew that the chairman, Mr. Holgate, had done a very great deal of work upon this matter, but that on account of illness in his family he had been unable to be present to present a report. Mr. Ambrose complained that the Toronto branch had forwarded a very exhaustive report upon this subject a year ago, but that no acknowledgment of it had ever been received from Mr. Holgate.

Mr. Oliver explained that the Toronto branch had organized several committees to work along with those at headquarters, with the idea of stirring up enthusiasm. These committees had met with so little encouragement that at the last meeting of the Toronto executive the practice had been questioned, but he felt that it was a very good one and should be encouraged.

Mr. Oliver proposed an amendment to Col. Anderson's motion, that the committee be reorganized with a different personnel. Lost on division. Col. Anderson's motion was then put to the meeting and carried.

*Boiler Specifications.*—The secretary read a report by L. M. Arkley, chairman of the Committee on Uniform Boiler Specifications. At a meeting held in Montreal, August 18th, 1916, at which members from Amherst, N.S., St. John's, N.B., and Toronto, were present, it was decided that the six Toronto members of the committee form a sub-committee to compare the existing rules for the construction and inspection of steam boilers adopted by Ontario and the other Provinces of Canada, with the Boiler Code of the A.S.M.E.; and to formulate a specification based on those in use in Canada at the present time, with the addition of such specification of materials and other clauses of the A.S.M.E. code which are considered desirable to supplement the present rules without conflicting with them. The sub-committee hopes to be in a position to make a definite recommendation at the next annual meeting. Report adopted and committee continued.

*Cement Specifications.*—J. A. Jamieson said he had been surprised to hear that the committee on cement specifications had been discharged after its report had been handed in last year. He had differed from some of the other members of the committee in some essential

particulars, and had signed the specification for use during the year only, hoping that by another year the committee would be able to evolve a better one. In some points the present specification handicaps the manufacturers, which is not desirable. He moved that a new committee be appointed to reconsider the specifications.

Prof. Brown said that the American Society of Civil Engineers have changed their specification during the past year, doing away with tests of neat cement and depending entirely on cement mortar tests. The British Institution differs in many ways in their specification from both the American and Canadian bodies. The Canadian Society was uniform with the American Society in its requirements, but this is not so now. A new committee would be desirable. Mr. Jamieson's motion carried.

*New Business.*—Prof. C. H. McLeod read the following letter from J. B. Challies, secretary of the Research Council:—

"The Advisory Research Council are preparing to secure a confidential inventory of Canada's facilities for scientific and industrial research, in order that they may be able to consider ways and means for effecting:—

"(a) The co-ordination and co-operation of all research agencies.

"(b) The extension and expansion of existing research.

"(c) The mobilization of the scientific man-power available for research.

"To this end, suitable questionnaires have been prepared to be sent out to the following groups:—

"No. 1—Universities, colleges and technical institutions.

"No. 2—Government departments (Dominion and provincial).

"No. 3—Managers and directors of Canadian industries.

"No. 4—Members of scientific, professional and technical societies.

"Little difficulty is anticipated in securing suitable and prompt replies from groups 1, 2 and 4, but there may be some trouble in obtaining satisfactory results from group 3,—the manufacturers and industries of the Dominion.

The Council are aware that the success of the industrial inventory of the United States, taken a few months ago, was very largely due to the fact that the national engineering societies of the United States undertook, through their own organizations, to have the forms presented to the manufacturers throughout the country properly filled in and promptly returned to the director of the industrial inventory. The Council, therefore, feel that, if they had the advantage of the assistance of the Canadian Society of Civil Engineers in connection with their questionnaires to manufacturers and industries, satisfactory results would be achieved.

"Could the Advisory Research Council obtain the co-operation of the Canadian Society of Civil Engineers in this important matter? If so, it would be of great service to the country and would be very gratefully appreciated."

R. A. Ross, discussing the above letter, inferred that it had been read to the members in meeting instead of being dealt with by the Society's council in order that the members would be acquainted with the activities of the Research Council and know the opportunities for rendering national service that are now offered. Out of

about 30,000 forms sent out by the United States Naval Board, over 25,000 had been returned as a result of the co-operation of the engineering societies.

The Canadian Society of Civil Engineers extends to every town in Canada, said Mr. Ross. It includes municipal engineers and others who are familiar with everything in their own bailiwick. The outlying districts would be largely covered through the mining societies. The Canadian Mining Institute, the Society of Chemical Industry, the Canadian Manufacturers' Association, and three or four other groups are being asked to help in the same way. Possibly a joint committee could be formed of all of these societies to direct the efforts of their members. The manufacturers' association would supply a list of all of the manufacturers. The Canadian Society of Civil Engineers is the most powerfully organized technical society in Canada—with over three thousand members from coast to coast—and they will be able to render dominate assistance in the inventory.

J. S. Dennis said that in connection with research work of this character he wished to call attention to the memorandum on national industrial development in Canada that had been prepared by Sir Charles Ross, Prof. C. H. McLeod, R. A. Ross, H. R. Safford and Walter J. Francis, the last four being well-known members of the society, and presented to the government of Canada. He said that the Society is to be congratulated upon having in its ranks men who have been able to deal with such important questions so satisfactorily. He hoped their memorandum would be published.

The Society should assist in industrial mobilization, continued Col. Dennis. The C.P.R. is assisting where possible. It has undertaken to make an exhaustive survey of the Dominion, collating from all government reports the information regarding the location and extent of our natural resources, having a corps of experts report on them, and also paying especial attention to statistics regarding labor shortages in all lines of endeavor, particularly agricultural.

Ontario and the East are being handled from Montreal in this survey, while Calgary is the headquarters for the West. Seven or eight thousand correspondents have been in communication, and a series of questions have been asked somewhat along the lines now suggested by the newly appointed Research Council. Col. Dennis said he was surprised at some of the results obtained. The lists of manufacturers had been secured from their association, the names of the mines from their published reports and from the provincial governments, and the lists of agriculturists through their societies and from the departments of agriculture. The returns show a marked labor shortage in agricultural and some other lines, and there is no doubt but that Canada will be able to locate many from the front if these conditions continue until after the war. There are many sides to the matter and we would fall short of solving the gigantic problem if attention is paid only to industrial development.

Col. Dennis referred briefly to his own activities in Canadian research work and in interesting the United States so as to obtain capital for development of our resources. He is making a series of addresses in Canada upon these topics, and is also giving ten addresses in the United States under the title of "Your Neighbors on the North," outlining Canada's resources and opportunities. He moved that the invitation given by the Research Council should be accepted, saying that its message should carry home to every member of the Society. Carried unanimously.

W. F. Tye moved that the memorandum by Messrs. McLeod, Francis, Ross and Safford be printed. "The efforts of these men," said Mr. Tye, "were largely responsible for the appointment by the government of two members of this Society as members of the Research Council." Mr. Ross here called attention to the fact that a third member of the Society, Mr. Challies, is now secretary of the Research Council.

J. G. Legrand:—"At this crucial moment, when it is a question of life or death, we must wake up. The Canadian Society of Civil Engineers especially must help the great cause in supporting the resolution made by important groups of men and associations to obtain a national government composed of the best men the country can produce, men representing all classes regardless of political opinions, which in this terrible crisis should have been eliminated the day after war was declared, thus saving thousands of lives and millions of dollars. During this meeting a committee should be appointed to prepare a resolution to that effect, worded in such a way as to be unanimously adopted by all the members present.

"I read in *The Canadian Engineer* of January 4th an article entitled 'Engineers Will Offer Services.' In this article it was stated that Mr. O'Hara, deputy minister of trade and commerce, intimated that the government does not understand clearly just how engineers might like to help, and suggested to Mr. Maclachlan, secretary of the Canadian Electrical Association, that the engineers should get together and present some definite plan of action to the government. Mr. Maclachlan might have answered Mr. O'Hara that it is not for an officer to ask a soldier what he is willing to do, but to command, and he will find that in the case of engineers they have been trained to do almost anything, and that some of them can give lessons on organization and prompt execution.

"The Society should select a member of wide experience who could be consulted by the national government on engineering matters and any big problem could thus be handed to him and he in turn could command the assistance of such members of the Society to enable him to solve the problem efficiently and promptly."

*Next Meeting Place.*—An invitation was presented by Col. Dennis on behalf of the Calgary branch, to hold the 1918 annual meeting at Calgary. This was accompanied by letters of endorsement from the city council, the board of trade and other Calgary institutions, and also from the society's branches at Winnipeg, Regina, Edmonton, Vancouver and Victoria.

The proposal was also endorsed in person by A. S. Dawson, chairman of the Calgary branch, who said:—

"It is most desirable to broaden out the operations of the parent society, which have been too provincial in their scope. There should be closer work and closer co-operation between the parent society and the various branches. The latter should be considered and looked upon as actual component parts of the parent society, and not mere affiliated organizations.

"The west has different types of engineering works than may be seen in the east; but they are none the less interesting and none the less important. The time is coming when it will be a case of the mobilization of the natural resources of the country, instead of men fit for military service. It behoves each of us to do our part in furthering the interests of the society by losing sight of personal interests and striving to elevate the profession as a whole; and in so doing to make a printed code of ethics unnecessary.

"I desire to endorse the invitation just presented to hold the 1918 meeting of this society at Calgary. Come west and get the optimism which prevails on those great broad prairies!"

In the letter of invitation from the Calgary branch, which was read by Col. Dennis, Sam G. Porter, the secretary-treasurer of the branch, said:—

"The western members of the society feel that it is only fair that the annual meetings of the society be held in the west occasionally in order that they may have the privilege of attending a convention held nearer their own homes. Up to the present time only one annual meeting has been held in the west,—the one at Winnipeg in 1911. We believe that the eastern members will recognize the justice of our claim and support our invitation."

Col. Dennis said that the Manitoba branch had passed a resolution supporting the Calgary branch in the latter's invitation, that Edmonton is in hearty accord with the proposal, and that Regina thinks it would be of great benefit to the engineers in the west to have an opportunity to attend an annual meeting. He referred to three great engineering features that the eastern members would see near Calgary—the Connaught Tunnel, the Bassano Dam and a reinforced concrete aqueduct, two miles long, for conveying water for irrigation purposes, which is the only one of its character on this continent.

W. F. Tye said that last year an endeavor was made to hold a summer convention in Vancouver and Victoria, but not very many eastern members signified their ability to go that far. He suggested referring the matter to council.

Col. Dennis said it is not a summer convention that is wanted. The western members want the business of the society to be carried on in the west for once. They would like a summer convention if they could not get the annual meeting, but would prefer the cow to the calf.

Mr. Tye then recommended the acceptance of the invitation. The branches should be satisfied in every way possible. The meetings could be held in different places. Montreal had gotten the reputation in the west of "hogging it." (Cries from western members, "No, no.")

Several members objected to holding the meeting in the west during the war, pointing out that the majority of members are in the east and the trip would involve great expense for these times, also referring to the expense of moving the society's statistical and business plant to the west for the purposes of the meeting, and to legal opinions, which state that annual meetings should always be held in the city in which the headquarters of any chartered society or corporation are located. A suggestion was made that a formal meeting of a legal quorum be called in Montreal early in January and adjourned to Calgary for a date later in the month.

"We are going to have these children in the west running after strange gods if we don't do something to bind them to us," said Col. Dennis. Mr. Uniacke moved that the matter be left in the hands of the council with a recommendation from the annual meeting that the meeting be held in Calgary if it be found possible and practicable to do so. Seconded by Mr. Tye and carried on division.

*Report of Scrutineers.*—The society's auditors reported that 420 ballot papers had been returned from members in good standing. Seventy-two had been returned by members in arrears, but the results of the election would in no case have been altered by counting these additional votes. J. S. Dennis, Montreal, was elected president (by acclamation); J. M. R. Fairbairn

and Col. C. N. Monsarrat, both of Montreal, vice-presidents; and as councillors for three years, Messrs. A. R. Decary, Quebec; James White, Ottawa; Geo. A. McCarthy, Toronto; R. A. Ross, Montreal; Julian C. Smith, Montreal; J. H. Kennedy, Vancouver; William Pearce, Calgary; and Horace Longley, St. John, N.B.

The retiring president thanked the members of council, officers of sections and members of committees for their co-operation during the past year, and then introduced the new president, Col. Dennis, who took the chair.

*President-Elect Takes Chair.*—Col. Dennis said he naturally appreciates the honor, as no man could have greater satisfaction than to be selected by his fellows as the head of their organization, whatever it might be. This was only the second occasion on which he had ever attended an annual meeting of the society. It was true that he had been vice-president at one time, but he had never taken much part in the society's or its branches' affairs, and there were some doubts in his mind as to why he had been selected. He had not indicated any special interest in the society. One friend had told him that the society recognized the merits of western roughness, and that Dennis was the roughest of the rough-necks that they could find!

Amid laughter Col. Dennis continued that his headquarters are now in Montreal. His friends said that after forty-four years in the west it was time he came home to die, but he proposed to do some very vigorous kicking yet. Naturally, his friends, associations and interests are all in the west, but during his year of office he hopes to really do something for the society. The opportunity is great, as the Canadian Society of Civil Engineers is known throughout Canada as an organization not devoted entirely to professional interests or to individual or society advancement, but as one that is intimately concerned in improving Canada as a whole, and composed of men who will be outstanding in helping to solve the big problems confronting Canada.

Col. Dennis referred to the heart-breaking work in the west that has built up the reputation of the engineering profession in that great territory. In this work the society has a proud record, which he trusts can still be improved during the coming year. But the first work is to win the war. The Department of Natural Resources of the C.P.R., of which he was the head until last November 1st, had sent over four hundred men to the front. He was glad to see that the society had sent so many men, and hoped that an honor roll bearing the names of these men would be prepared and hung in the hall of the society's building.

Walter J. Francis moved that a cable be forwarded, bearing the greetings of the meeting, to Col. Chas. H. Mitchell and the other members of the society who are in the trenches. Carried.

Prof. McLeod read the report of the Gzowski Medal Committee, Phelps Johnson, chairman, recommending the award of the medal to Messrs. Henry Holgate, Julian C. Smith and R. M. Wilson for their series of three papers on the Cedars Rapids hydro-electric development. Approved.

The following nominations for Nominating Committee for officers and councillors for the year 1918 were made by the branches:—

H. M. Mackay, Montreal; J. S. O'Dwyer, Moncton; J. E. Gibault, Quebec; Geo. A. Mountain, Ottawa; J. R. W. Ambrose, Toronto; A. S. Dawson, Calgary; and H. W. E. Canavan, Victoria.

No other nominations being made by the meeting, the above gentlemen were declared elected by acclamation.

Moved by Col. Monsarrat and seconded by Geo. A. McCarthy, that an honor roll be prepared and exhibited in the building. Carried unanimously.

The meeting was adjourned about 6.45 p.m.

The new council met at 3 p.m. the following day and organized for the year. Prof. C. H. McLeod was re-elected secretary and E. Marceau, treasurer.

**Registration at the Meeting.**—Two hundred members registered at the annual meeting, of which about sixty-five were from outside of Montreal, as follows (in order of registration):—

W. J. Dick, Ottawa; W. H. Taylor, Winnipeg; J. G. Legrand, Winnipeg; M. Wolfe, Quebec; E. W. Oliver, Toronto; B. E. Norrish, Ottawa; R. F. Uniacke, Ottawa; G. G. Gale, Ottawa; P. H. Mitchell, Toronto; R. McColl, Halifax; D. W. McLachlan, Ottawa; A. L. Killaly, Peterboro'; C. B. Daubney, Ottawa; H. E. T. Haultain, Toronto; M. D. Nicholson, Goderich; E. A. James, Toronto; G. C. Parker, Toronto; L. P. Vezina, Chicoutimi; James White, Ottawa.

A. St. Laurent, Ottawa; A. A. Dion, Ottawa; W. S. Lawson, St. Johns, P.Q.; H. A. Paquette, Levis; C. M. Goodrich, Walkerville; J. G. Sullivan, Winnipeg; J. B. Challies, Ottawa; A. B. Lambe, Ottawa; G. A. McCarthy, Toronto; S. B. Clement, North Bay; Geo. A. Mountain, Ottawa; J. R. W. Ambrose, Toronto.

H. T. Hazen, Toronto; E. A. Stone, Kingston; A. Gray, Ottawa; S. Fortin, Ottawa; G. Stead, Chatham, N.B.; L. A. Desy, Ottawa; J. L. Busfield, Ottawa; J. W. Hayward, Toronto; W. D. Baillairge, Quebec; N. F. Ballantyne, Ottawa; G. H. Blanchet, Ottawa; E. V. Johnson, Ottawa.

R. F. Davy, Temiskaming, P.Q.; Wm. P. Anderson, Ottawa; H. B. Aylmer, Melbourne, P.Q.; George Kydd, Campbellford; T. U. Fairlie, Toronto; L. L. Ferguson, Frankford; W. F. M. Bryce, Ottawa; J. R. Bissett, Ottawa; A. F. Macallum, Ottawa; P. Charton, Paris, France; W. L. MacKenzie, Ottawa.

B. De Grand Mont, Quebec; Jos. R. Roy, Ottawa; J. F. Grenon, Chicoutimi; Victor F. Murray, Ottawa; H. L. Swan, Penticton, B.C.; A. S. Dawson, Calgary, Alta.; A. A. Colter, St. Mary's, N.B.; S. D. Fawcett, Ottawa; H. W. Melanson, Bathurst, N.B.; Hugh D. Lumsden, Orillia; E. A. Forward, Quebec.

## 256th RAILWAY CONSTRUCTION BATTALION.

On page 61 CN of this issue there will be found an advertisement of the 256th Railway Construction Battalion, Lieut.-Col. W. A. McConnell officer in command. This announcement is particularly called to the attention of engineers and engineering contractors. The battalion is being recruited for special railway work at the front and is anxious to enlist men who are familiar with construction work of all kinds. The physical standards which apply to regular infantry battalions do not hold when enlisting with the 256th, but the rate of pay is the same. The battalion will go to the front as a unit for special work. Another very interesting fact is that it will leave for overseas just as soon as it reaches strength.

## AMERICAN ROAD BUILDERS' ASSOCIATION.

In arranging the programme for the seventh American Good Roads Congress to be held in Mechanics Building, Boston, Mass., February 5 to 9, under the auspices of the American Road Builders' Association, the committee in charge has selected a number of leading subjects and has decided to devote an entire session or a definite part of a session to the consideration of each topic. Each will be introduced in a formal paper prepared by a leading authority, and the subject will then be open for discussion by the delegates. Among the subjects to be treated at the various sessions are the following:—

Bituminous roads and pavements and treatments (sheet asphalt, bituminous macadam, bituminous concrete, etc., etc.); cement concrete roads and pavements; stone block roads and pavements; wood block roads and pavements; brick roads and pavements; traffic—its effect on design, construction and maintenance and its regulation; contractors' plant or equipment; earth, gravel, sand-clay and miscellaneous roads and pavements.

Among the papers which have been selected to be read during the convention are the following:—

"Policy and Programme of Government in Road Construction Under New Federal Aid Law," Logan Waller Page, director, United States Office of Public Roads and Rural Engineering.

"Highway Engineering Education," T. R. Agg, Professor of Highway Engineering, Iowa State College.

"Best Practice in Concrete Road Construction," H. E. Breed, First Deputy Commissioner, New York State Commission of Highways.

"Recent Practice in Granite Block Pavements," Wm. H. Connell, Chief, Bureau of Highways and Street Cleaning of Philadelphia, Pa.

"Recent Practice in Wood Block Pavements," Ellis R. Dutton, assistant city engineer of Minneapolis, Minn.

"Best Practice in Brick Pavement Construction," F. R. Williams, paving engineer of Cleveland, O.

"Traffic Census—Its Application to the Design of Roadways, Selection of Pavements and Traffic Regulation," D. B. Goodsell, assistant engineer, department of public works of the Borough of Manhattan, New York City.

"Earth and Gravel Road Maintenance," R. L. Morrison, Professor of Highway Engineering, Agricultural and Mechanical College of Texas.

The tentative program calls for the opening of the Eighth National Good Roads Show on February 5th. The registration of delegates and visitors will proceed during the day. In the evening the officers of the American Road Builders' Association will tender a formal reception to the exhibitors in the convention hall.

The first session of the congress will be called to order in the convention hall at 11 o'clock Tuesday morning, February 6th, by the president of the American Road Builders' Association. Governor S. W. McCall of Massachusetts and Mayor James M. Curley, of Boston, will welcome the delegates to the state and city respectively and other addresses will be made by Col. Wm. D. Sohler, chairman of the Massachusetts Highway Commission; Charles F. Weid, president of the Boston Chamber of Commerce, and George W. McNear, president of the Bay State Automobile Association. President A. W. Dean will make the response for the association.

# Editorial

## INTERESTING THE UNITED STATES IN CANADA.

Canada will no doubt have a tariff preference in all the markets of the British Empire after the war, and it seems reasonable to suppose that she will have at least a sympathetic preference in the countries that are allied with Great Britain. This will give Canada special opportunity for trade extension, particularly in the great empire of Russia.

According to Col. J. S. Dennis, president of the Canadian Society of Civil Engineers and assistant to the president of the Canadian Pacific Railway Co., these facts justify Canadians in extending an invitation to the people of the United States to establish more Canadian branches of United States industrial concerns, and to invest their money in the development of Canadian resources.

Col. Dennis is well known in the United States as an exponent of Canadian opportunities. He has spoken there frequently, and is now engaged in delivering a series of ten addresses entitled "Your Neighbors on the North," which give a complete outline of Canadian opportunities and resources.

This is important work of a sort which should be taken up by more engineers, because Canada will be very largely dependent on the United States for capital for some years after the war, and the true facts concerning our forests, mines, railways, municipalities, etc., can very frequently be explained by engineers to hard-headed business men and investors in a manner more convincing than could be done by more fluent but less accurately informed orators.

## MONTREAL AQUEDUCT COMMISSION.

In an editorial in our January 18th issue we suggested that Sir Frederick Williams-Taylor be appointed as the business man and chairman of the commission to investigate the conflicting aqueduct reports presented by the city engineer and the ratepaying engineers of Montreal, and that the Montreal city council appoint one of the two engineers and the Canadian Society of Civil Engineers the other.

Our attention has now been called to the fact that Mr. Mercier had recommended the appointment of Messrs. Beaudry Leman, Henry Holgate and H. E. Vautelet, with Mr. Leman as chairman.

When the above-mentioned editorial was written, it was not known that Mr. Mercier had made such definite recommendations. As was stated in that editorial, no official copy of the report was available,—only the Montreal newspaper report of abstracts from it,—and this newspaper report had merely stated that Mr. Mercier had recommended the appointment of two engineers and one business man. *The Canadian Engineer* did not know that Mr. Leman had been mentioned for the position, and it was not our intention that he be displaced by Sir Frederick Williams-Taylor. Sir Frederick's name was mentioned only because he is the head of the bank which is conducting the city's financial affairs, and he should, therefore, be most intimately acquainted with what the city can afford and with the amount they have spent in the past.

Mr. Leman would, no doubt, be quite satisfactory as chairman of the commission. As general manager of La Banque d'Hochelaga, he is undoubtedly familiar with Montreal's finances, and what information he lacks on account of his institution not being Montreal's official bank, would be made up by his engineering knowledge, as he is a B.Sc. of McGill University and of the University of Lille, France.

It is understood that the commission of three men, as recommended by Mr. Mercier, will really be appointed at an early date by the Board of Control. Either Sir Frederick Williams-Taylor or Mr. Leman should be a most satisfactory and open-minded chairman, but from the trend of affairs in Montreal at the present time, the commission may not include either of them.

The council of the Canadian Society of Civil Engineers should be permitted by the Board of Control to name one of the two remaining members of the commission, and Mr. Mercier should be asked to name the other.

## CANADA'S RAILWAY PROBLEM.

W. F. Tye's paper on "Canada's Railway Problem and Its Solution," which has been presented to the Canadian Society of Civil Engineers, is a noteworthy contribution to Canadian economic and railway literature. It is far more than literature, however. It embodies great ideas, such as could have been evolved in a practical way only by a man of such vast experience and ripe judgment as Mr. Tye. Having been chief engineer of the Canadian Pacific Railway Company for many years, and with a long and varied engineering experience previously, Mr. Tye is unusually well qualified to discuss Canada's railway problem and its solution.

Mr. Tye undoubtedly has the detailed facts and figures on hand to back up all of his conclusions, and presumably would be willing to place them at the disposal of the properly constituted authorities when official attention is given to his article.

Mr. Tye's paper should not be merely read and filed. It should be a live issue on the desks of Canada's Railway Board and of every member of Canada's Cabinet and Commons.

The twenty-three recommendations and the causes leading up to them should be carefully studied, not only by every politician, but also by every responsible government official in Canada. No doubt some will disagree with Mr. Tye's recommendations, but nobody can deny that there is food for reflection in what he says, and that the digestion of his report by all members of the government will be of ultimate benefit to the public.

## NATIONAL BUSINESS CONVENTION.

The proposed National Business Convention, of which much was heard last year, is, it seems, to take place after all. It has been postponed so often that the impression became general that the conference would not be held. Sir

George Foster, however, in a recent interview in London said:—

"Much work has been done already and more must be done yet before the proposed Business Men's Convention in Canada can profitably meet. Meanwhile, public attention has been drawn to the objects for which the convention would meet. At present everybody is very busy and no one knows when the war will stop or what will be the conditions when it does stop. Everybody is thinking what can be done, but it is no good getting together until we have something definite to discuss, but in the meantime the matter has been brought to public attention and no ground has been lost."

Sir George is misled if he believes that many business men in Canada are doing any work in preparation for such a business convention or even thinking about the convention at all. The initiative, the preliminary plans and even the detailed plans of a successful national convention of this kind must—and should—all come from the government.

### PERSONAL.

WILLIAM FORBES, of Woodstock, Ont., has been appointed superintendent of good roads in Oxford county.

GORDON MCGREGOR was elected chairman of the Essex Border Utilities Commission at the recent inaugural meeting.

Lieut. PERCY VERE BINNS, a graduate in engineering of the University of Toronto, 1914, has been awarded the Military Cross for bravery.

JOHN ROBINSON has been appointed foreman of the eastern division of the county road system in McGilivray township to succeed J. D. DRUMMOND, who has resigned.

GEORGE H. DUGGAN, past president of the Canadian Society of Civil Engineers, has been elected a director of the Wayagamack Pulp and Paper Company, Montreal. Mr. Duggan left last night on a business trip to England.

J. G. CAMERON, C.E., of Berwick, Ont., has been appointed county superintendent over the extensive good roads scheme adopted by the counties of Stormont, Dundas and Glengarry, Ont.

Major V. L. MARSH, president of the Marsh, Hulton, Powers Co., contractors, New Westminster, B.C., has been appointed commanding officer of the railway construction corps to be raised in New Westminster.

RICHARD BELL, for many years head of the Sarnia waterworks system, was very seriously injured at the pumping station on January 23rd when his overcoat became caught in the revolving shaft of the big pumping engine.

B. G. MICHEL, A.M.Can.Soc.C.E., recently engineer for the town of Carleton Place and the corporation of the county of Lanark, Ont., has opened offices in the Bank of Toronto Building, Kitchener, Ont., for consulting practice in civil and sanitary engineering.

Major CHARLES FRANCIS HANINGTON, Mem. Can.Soc.C.E., of the 257th Railroad Construction Corps, has left Ottawa for St. John, N.B., where he will endeavor to raise a company of two hundred and fifty men in his native province and then proceed overseas with his regiment.

Dr. FRED. ADAMS, epidemiologist in the medical health laboratories, Toronto, has taken out a commission in the Canadian Army Medical Corps and has received

orders to report for duty on February 1st. Dr. Adams was head of this division of the public health department during the absence of Dr. G. G. Nasmith in France.

GEO. H. PEGRAM, chief engineer of the Manhattan Elevated Railroad, was elected president of the American Society of Civil Engineers at the annual meeting in New York last week. He was born December 29th, 1855 at Council Bluffs, Iowa, and graduated from Washington University in 1877.

Major L. C. THOMSON, railway contractor, has been appointed recruiting officer in Montreal of the 257th Railway Construction Battalion, being raised by Lieut.-Col. L. T. Martin. Major Thomson has been engaged in railway construction work in the Maritime Provinces, Quebec and Ontario.

GEORGE T. DOUGLAS, of Amherst, N.S., until recently manager of the Amherst plant of the Canadian Car & Foundry Co., Limited, has been appointed assistant to the vice-president and managing director of that company, and has left for England and France in connection with the company's export orders.

S. B. BENNETT, municipal engineer of South Vancouver, has resigned, and will leave for England about the end of February, where he has been appointed chemical engineer in a munition factory. Mr. Bennett went to British Columbia six years ago and was appointed city engineer of Nanaimo, but in 1914 was appointed to his present position in South Vancouver.

Lieut. C. S. L. HERTZBERG, A.M.Can.Soc.C.E., of Toronto, was wounded in the shoulder on January 21st. He was recently awarded the Military Cross for digging trenches under fire. He is a graduate of the School of Practical Science and went overseas with the Canadian Engineers. Lieut. Hertzberg is a son of Mr. A. L. Hertzberg, divisional engineer of the C.P.R.

### OBITUARY.

ROBERT McBRIDE, of Vancouver, B.C., for the past ten years road superintendent for the province of British Columbia, passed away on January 22nd at the age of 58 years. He was born in Woodstock, Ont., and went to British Columbia 28 years ago.

### CORRECTION.

Equation 14, page 52, January 18th issue of *The Canadian Engineer*, read  $Md = + wL/120$ . This should have been  $Md = + WL/120$ .

### COMING MEETINGS.

TENTH CHICAGO CEMENT SHOW, Coliseum, Chicago, Ill., February 7-15. Secretary, Blain S. Smith, 210 South La Salle Street, Chicago, Ill.

AMERICAN CONCRETE INSTITUTE. Hotel La Salle, Chicago, Ill., February 8-10, 1917. Secretary, Harold D. Hynds, 1418 Walnut Street, Philadelphia, Pa.

THE NATIONAL BUILDERS' SUPPLY ASSOCIATION. Annual meeting at the Hotel Sherman, Chicago, February 12-13, 1917. Secretary, L. F. Desmond, 1211 Chamber of Commerce, Chicago.