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MISSING

. . THE CENTRAL . . Railway and Engineering . . . . Club . . . . OF CANADA

OFFICIAL PROCEEDINGS

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C. L. WORTH, Sec.-Treas., Room 409 Union Station, Toronto.

PROCEEDINGS OF THE CENTRAL RAILWAY AND ENGINEERING CLUB OF CANADA MEETING.

ROSSIN HOUSE, TORONTO, May 19th, 1908.

The President, Mr. McRae, occupied the chair.

Chairman—

The meeting will now come to order.

As we all have been supplied with our monthly book, it

will be in order for some person to move that the minutes of previous meeting be taken as read.

Moved by Mr. Baldwin and seconded by Mr. Herriot that minutes of previous meeting be taken as read.

Chairman—

We will now call upon the Secretary to announce the names of new members.

NEW MEMBERS.

R. H. Melburn, Mechanical Superintendent, London Street Railway, London.
W. J. Bird, Chief Engineer Canada Foundry Co., Toronto.
T. T. Black, Civil Engineer Canada Foundry Co., Toronto.
C. S. Parker, Rep. Parker Car Heating Co., London.
F. S. Smith, Chief Clerk, Master Mechanics' Office, Stratford.
D. Murray, Manager, Murray Printing Co., Toronto.
W. H. Smith, H. W. Petrie Co., Toronto.
W. Dyer, Engineer, G.T.R., Stratford.
D. Ross, Engineer, G.T.R., Stratford.

Chairman,—

You have heard the names of the prospective new members read to you. The Executive have acted in the matter to-night and have passed favorably in connection with same. I therefore, declare that these gentlemen become members of our Club.

MEMBERS PRESENT.

Jno. W. Griffin.	J. C. Garden.	N. MacNicol.
J. C. Blanchflower.	S. W. Price.	A. W. Shallcross.
A. Attle.	G. D. Bly.	J. A. Mitchell.
J. Mooney.	D. Ross.	Geo. Cooper.
K. D. Clack.	W. R. McRae.	P. McCabe.
A. E. Till.	J. M. Clement.	W. J. Bird.
Jas. Herriot.	H. Spencer.	I. Jefferis.
J. McWater.	D. Campbell.	Jas. Barker.
A. G. McLellan.	G. Bernard.	H. Cowan.
J. Duguid.	G. F. Lilley.	H. G. Fletcher.
Acton Burrows.	Geo. Baldwin.	W. E. Archer.
T. J. Ward.	Geo. Black.	J. W. McLintock.
Thos. J. Walsh.	A. J. Nixon.	A. J. Lewkowiez.
E. B. Allen.	W. H. Clark.	L. Haws.

The Central Railway and Engineering Club of Canada

ARTICLE 2—OBJECT.

"The object of this Club shall be the advancement and dissemination by means of reports, papers, investigations and discussions of knowledge concerning the construction, operation and maintenance of railways and railway equipment, and engineering subjects, and the cultivation of sociability among its members.

.....190.....

C. L. WORTH,

Secretary-Treasurer,
Room 409, Union Station.

Dear Sir:--I desire to become a member of the Central Railway and Engineering Club of Canada, and ask you to present my application for membership. Enclosed please find $2.00, for annual dues, for current year.

Yours truly,

.....

Title.....

Address.....
(Location)

Nominated by.....

Chairman,—

In connection with the matter of securing new members. This is our last meeting for the season, however, I wish you to bear in mind that the Secretary will not change his address, which is room 409, Union Station, therefore, it behooves all of us to try and bring in new members during the next three months when we do not meet, and I trust when we meet again we will have a much longer list of names to submit to you. This is the only way we can secure new members,—by each individual member trying to secure them.

The Secretary has suggested to me that he will send out an application blank in every book and that he will expect each member to return that blank filled in with the name of a prospective member. I think this is a very good idea on the part of the Secretary and shows his usual energetic means of carrying out any proposition.

Chairman,—

Are there any of the members who wish to say anything in connection with the paper which was given at our last meeting night? Is there any question which you wish to be forwarded to the writer of that paper.

Chairman,—

Mr. Blye, are you satisfied with the paper?

Mr. Blye,—

I know of no further question to ask.

Chairman,—

The next order of business is the reading of papers and discussion thereof.

We have with us to-night Mr. Clarkson James of the Department of Education, who has very kindly volunteered to give us a paper. I trust there will be a lively discussion in connection with same and I am going to ask several of the members to lead this discussion. However, I do not wish to confine the discussion to only those I call upon.

I have much pleasure in asking Mr. Clarkson James to give us his paper.

TRAINING FOR INDUSTRIAL LIFE.

BY MR. CLARKSON JAMES, SECRETARY, DEPARTMENT OF EDUCATION, TORONTO.

Mr. Chairman and gentlemen of the Central Railway and Engineering Club of Canada:—

I am deeply sensible of the honor you have done me by extending to me so courteous an invitation to say a few words to the members of your Association on this occasion. The subject upon which I wish to speak is:—

"TRAINING FOR INDUSTRIAL LIFE."

This subject may, at first thought, strike you as possibly a rather dry one for such an occasion. But, when you consider the nature of your own particular avocations, and recall the high order of expert technical knowledge so necessary to a proper discharge of your duties, possibly, after all, my subject may not be uninteresting.

I will not attempt to weary you with an explanation of the intricacies of the Educational System controlled by the Department with which I am officially connected; neither do I desire to convey the impression that any remarks or statements which I may make have any official significance whatever. I simply desire to give you my own thought as a humble member of that vast army of Canadians whose greatest desire is to see our beloved country well up in the front rank with the other nations of the world.

It will, however, be necessary to make some reference to those branches of instruction which lead up to our subjects to be found in the curriculum of many of the public schools in this Province:

MANUAL TRAINING.

Considerable attention has been given by those interested in up-to-date educational methods to the subject of Manual Training. A great many persons formerly held erroneous views regarding the object to be gained by the establishment of Manual Training Schools. The introduction of subjects of an industrial character into the public school course also met with considerable opposition. It is even now frequently assumed that the principal object to be gained is the training of boys and girls for different occupations. Impressions have also been created, that the sole aim and purpose is to turn out pupils who may be skilled in the work of different trades. It should be understood, however, that the purpose of Manual Training is not to prepare pupils to become skilled mechanics or artisans, but to receive those educating influences which will

be of service to them in preparing for whatever occupation they may choose to follow. The introduction of Manual Training into the schools of this Province has had the effect of silencing some critics of the educational system already existing. It should be understood that its claims are not based on economic, but on educational grounds. Pupils should give attention to the departments of Manual Training for the same reasons that they give attention to the branches of science, literature and mathematics. The object of the school is not to prepare boys to become carpenters, shoemakers or blacksmiths, but to give them such training as will enable them to become industrious and useful citizens. There is no doubt that with the passing of the system of apprenticeship, some arguments may be used for a course of training that will supply advantages that formerly obtained, but it is held that attention to Manual Training, if it tends to lessen the attention which pupils give to reading, writing, arithmetic, geography, grammar and history, cannot well be defended. No amount of Manual Training can ever make up for training in literature and science. Any tendency to lessen the importance of the ordinary branches of the school course is to be deplored. If the child should be deprived of the opportunity of instruction in those subjects, he will lack in that intelligence which every citizen should possess. It should be felt that it is the training in good habits, and not the acquistition of knowledge, which has most value in the education received at school. The public school is not excelled as an agency in the inculcation of industry, neatness and self-control. The boy who is not trained in good habits will fail in life, no matter how skillful he may be in the handling of tools. It is not the farmer or the mechanic who works hardest that is most successful, but rather the one whose intelligence and morals have been best directed. The majority of children will, however, be required to earn their living by manual labor. More intelligence than formerly is now demanded in nearly every walk of life. The course of study of a school is evidently defective if boys and girls receive any training that unfits them for their ordinary occupations. Under these circumstances Manual Training Schools have been established, and a course of training adopted in the public schools which will, to some extent, secure the same object.

Manual Training has already attained a permanent position in our schools. Its true educative value has become known and it now ranks with science, literature and mathematics in the curriculum of educational institutions. As a preliminary to Manual Training, drawing is essential. Work in the shops in carpentering or modelling would be difficult, unless a preparatory course in freehand, geometrical and model drawing were previously taken up. After securing a knowledge of

elementary drawing, which calls for attention to the various geometrical forms, such as triangles, circles, parallelograms, etc., the use of simple tools begins. The various terms familiar to carpenters are soon mastered, and the use of the jack-knife, the jack-plane, the draw-knife, the chisel, gauge, hammer, etc., are explained. It is surprising with what interest pupils apply themselves in making different objects from the material supplied. They talk about the "mitre joint" the "mortise," "end dovetail," "side dovetail," "stubmortise," "oblique scarf joint," "dovetail box," etc., with the same familiarity that pupils ordinarily speak of pronouns and verbs, or acids and bases. It is held that Manual Training aims at the broadest and most liberal education; that it develops and strengthens physical powers; renders more active the intellectual faculties; and thus enables pupils to acquire with great readiness and thoroughness the academic education which should go hand in hand with Manual Training. In the High Schools, where Manual Training is a part of the curriculum, it is interesting to notice with what readiness, boys and girls, after being instructed one hour in algebra, history, Latin or literature, will repair the next hour to the shops, put on their working aprons, and engage in woodwork, ironwork or other operations of the Manual Training Department. It is contended that training of this kind conveys an appreciation of the dignity as well as the value, of intelligent handicraft and skilled manual labor. Opportunities are given for symmetrical and harmonious education; habits of thrift are inculcated; a spirit of self-reliance developed; facilities made available to aid those who are willing to aid themselves.

"SCHOOL LIBRARIES."

This is a part I wish you gentlemen to pay particular attention to. Public sentiment is only beginning to be fully alive to the necessity of doing more in the direction of supplying suitable reading mater to the pupils attending public schools. While acknowledging the great services which Public Libraries give to adult population in cities and towns, it is evident that the needs of the children, in the past too much neglected, are now only beginning to receive due recognition. To spend thousands of dollars in getting books for a Public Library is praiseworthy. To spend an equal amount in providing books accessible to students at High and Public Schools is still more worthy of praise. If the reading of school children is properly directed, it may be fairly assumed they will read judiciously when they become men and women. An ordinary Public Library is an institution worthy of support, but it is not nearly so deserving of the support of the people as a school library.

In some cities of the United States the Public Library is located in the principal school building, and with its thousands of volumes available without difficulty to the pupils, it performs a service far more valuable than if it were under separate management, and not readily accessible to those attending the Public Schools. In a large city a Public Library as well as School Libraries should be provided, but the latter should have first consideration. It is to be deplored, also, that the efforts of those in authority until very recently put forth, have generally had reference to the claims of towns and cities, while the interests of the rural districts had been too much neglected. If any class of the population of a nation should have first consideration in a matter of this kind, it is that class of persons who, living remote from cities and towns, have few opportunities of obtaining books, and who are too often shut out from the means of self-improvement available to those in urban municipalities. What is needed in order to secure permanent results, is the establishment of selected libraries in the various rural schools throughout Canada. A supplementary reading course of selections from standard authors would do much to kill the desire for useless and harmful novels, and cultivate instead a better taste for good and instructive literature. A well equipped school library is the students' greatest aid to character building, and as such it deserves and requires the most thoughtful consideration of those who are in immediate control of educational affairs. It has long been accepted as a fact that the first twelve years of life carry the child through a formative period of greater consequence than any which follows. It, therefore, becomes the duty of those in authority to provide the most favorable conditions for intellectual and moral growth during this initial period. A well stored, clean, healthy mind should be the natural heritage of every Canadian.

The Public and High School training should directly influence the proposed vocations of the pupils, by inculcating a desire to put forth every effort to attain success. The more intelligent the person, the better workman he is likely to be. Under the old system of apprenticeship—which included even the professions—persons had to bind themselves for a certain number of years to the masters of the several trades and professions in order to obtain the training or knowledge required. Thus young men who desired to qualify for the professions had to obtain the technique of their several callings from older practitioners. Agriculture was learned by observation and work on the farm. Mechanical trades by work in the shops and factories, and instruction in household science and domestic economy was obtained in the kitchen at home. The apprentice system answered very well for stationary conditions; but with the development of modern science it has gradually disappear-

ed. The constant advancement in railroad systems now calls for a type of engineers and mechanics who are trained to meet the improved conditions. The rapid growth of the country requires that our wants must be in great measure supplied by home manufacture, thus necessitating new and complicated machinery, becoming more and more automatic as the demand increases,—and calling for expert knowledge in all the prominent avenues of industry. Consequently our educational system must be such that if our children are to become mechanics we must see to it that they are given an opportunity to know all about machinery. If they are to be teachers of science, chemistry must conceal none of its facts from them. If they are to enter into the commercial realm they must know all about accounts and business procedure. If they choose to follow agricultural pursuits, then they must be taught how to obtain the best results by the application of up-to-date methods. If we can become seized of the great necessity of securing for our children the best intellectual and industrial training so that the natural resources of our country may be developed economically and skillfully, we will then, in a great measure, discharge our duty towards them by equipping them for the severe industrial competition that now obtains in all countries; besides fitting them for a better and higher standard of citizenship—a goal to which all should aspire.

Let us not forget, however, that Technical Education is the mother of the practical, and that science, properly applied, investigates and lays bare the secrets of nature. The stupendous achievements of Germany in recent years in arts, manufactures, and commerce rest primarily upon scientific discoveries made possible by educating their students in the higher technical branches, thus enabling them to discover scientific facts.

With the view then to meet these requirements technical or industrial schools should be established at selected points in each Province of our Dominion. These schools should be manned by expert instructors and thoroughly equipped with the proper machinery and apparatus to impart instruction in all industrial pursuits. They should also be free to all students leaving the public schools possessed of sufficient knowledge to intelligently carry on the advanced studies necessary to a proper understanding of the art or industry desired. For instance, the public school curriculum could be so arranged as to embrace familiar lectures with illustrations on geometry, elementary physics, elementary chemistry and natural history, which would prepare the student to continue his studies in the technical school where those branches would be thoroughly taught and where he would be instructed in all branches in that trade or calling to which he intended to devote his life.

To establish such schools, however, would necessitate an immense expenditure of money on the part of the Federal and Provincial governments. Each Province would require to control and equip its own schools as the conditions in each Province need special and distinct treatment. But, as Governments do not lead public opinion, simply following and complying when the demand is strong enough, it behooves those interested in procuring for the children of this advanced age an opportunity of preparing themselves properly for the battle of life, to stimulate the waning interest of the people into new efforts the result of which will be the obtaining of the proper facilities for imparting the necessary technical training for industrial life and the preparing of expert artisans and mechanics who will improve our industries and develop our bountiful wealth in forests, mines, streams and fields.

Chairman,—

We have all listened with a great deal of interest to Mr. James' paper, and I trust that the discussion will be just as excellent as the paper. If it is not, I will be very much disappointed. This is a subject which no doubt appeals to all of us, as every one of us is more or less interested in technical education, especially so in the training of the young men. Mr. James has in several parts of his paper referred to what is best for Canada and the Canadians. This undoubtedly is also very near to our hearts.

In opening this discussion I will call upon Mr. Acton Burrows to lead same, and as I have said before, because I have occasion to call upon certain gentlemen, I trust that those upon whom I do not call, may be sufficiently interested to arise and take part in the discussion. It is not my purpose to neglect any member.

Mr. Burrows, will you kindly lead the discussion.

Mr. Acton Burrows,—

I really do not feel competent to lead this discussion. The Chairman says that he hoped the discussion would be as interesting as the paper. In that case it will be for the gentlemen who follow me to make it so. There is one thing which has always struck me relating to public school education, that is, that instead of extending the curriculum, I certainly believe that for the first few years of a boy's school life it should be cut down. I think the tendency is to have too many subjects. It is impossible in a limited number of years for a boy or girl to get a thorough training in all the subjects now taught. It seems to me that the Old Country system of being thoroughly grounded in the three R's, is good. There are a number

of subjects which have been introduced which may be looked upon as fads and could be cut out. I think for the first few years of a pupil's life he should only have a few subjects and gradually extend the number. On the other hand the objection to this may be argued that the pupil's mind in the beginning of his education is more susceptible. I do not want these remarks to apply to manual training. There is no school work in Ontario better than manual training. Two of my boys went through the model school here and found the manual training they got there greatly to their advantage. I wish to say that there is not a school that I know of which is better than the Toronto Model School. Mr. James brought out the question of libraries in the schools. I think this a good thing and that it should be established, especially in the rural schools. There is a great dearth of good libraries. I have drafted a resolution which I think we should forward to the Government of the Province of Ontario to urge the establishment of technical or industrial schools at different points in the Province, equipped with proper machinery, etc., and that these schools be open to all, and I beg to move as follows:

That the Government of the Province of Ontario be urged to establish technical or industrial schools at selected points, the same to be manned by expert instructors and thoroughly equipped with the proper machinery and apparatus to impart instruction in all industrial pursuits, and further, that the same be free to all pupils leaving the public schools of sufficient knowledge to carry on the advanced studies necessary to a proper understanding of the industry desired.

Seconded by Mr. Baldwin and carried.

Mr. J. C. Garden,—

I beg to assure you that I have been a very interested listener to the address delivered to us to-night by our guest of the evening.

Mr. James has spoken of the necessity of schools for preparing men for the higher positions in practical walks of life, by giving them a first-class technical education. My experience and observation along this line has been that the men who get this technical education never get the practical side. I know of only one exception to this rule, that is, a man who went through the schools, secured a technical education and afterwards got a thorough practical knowledge along mechanical lines. Mr. James has stated that the apprenticeship system is dead. The apprenticeship system for a long time was a dead letter, because it was carried on under primitive methods, but new systems have been devised. The system in vogue on the Grand Trunk Railway is now being introduced by manufac-

turers all over the country and I believe it is the best system at the present time, producing first-class technical and practical men. The necessity of technical education for apprentices is very great but the need of men being practical is very much more essential. We have lots of men with good technical ideas, but very few who can put their ideas into practice. The great need to-day is for practical men and they are very scarce.

I am sure we have all been very much interested in Mr. James' discourse as we are all interested in higher education along mechanical lines. I think the practical comes first. When a boy goes to school and gets to the age of eighteen or twenty and then leaves his books and pleasant surroundings and goes into a workshop to get his practical knowledge, the shop conditions are usually distasteful to him and a week or two is generally the limit of his stay and one day suffices a great number of them. If you could obtain the practical along with the technical education, it would be ideal, but the boy is certain to be anything but practical if he spends the first years of his education solely along technical lines.

The system that is being pursued by the Grand Trunk Railway and nearly all the companies who are adopting the new apprenticeship system is to give the boy as much technical education as he can properly mix with his practical experience. This is done by means of night classes, but I am personally not in favor of night work for boys. When a boy has worked all day, he requires his evenings for recreation. My idea is that a portion of the day should be set aside for the technical side of his education. A boy who is deprived of his proper seasons of recreation becomes an old man too soon, his spirit is broken and he seldom if ever makes the success of life his ability warrants.

Mr. Acton Burrows,—

I think there is a great deal in what Mr. Garden says. The pupil who goes along the line of technical education entirely is very much at sea. I think that practical and technical education should go together. I believe that is one of the features in the Grand Trunk apprenticeship system. Take drawing for instance; the apprentices are taught to draw, while at the same time they get their practical education in the shops. They get their technical education during the time they learn their trade. I do not see why the technical side should not be accomplished by education at night.

Mr. Clarkson James,—

By the permission of our worthy chairman I am given an opportunity of replying to Mr. Garden and Mr. Burrows.

Mr. Burrows advises the cutting down of the curriculum of the Public Schools. I purposely omitted to refer to night schools in my paper as that question, in my opinion, requires a consideration which the limited time at my disposal on this occasion would not permit. In so far as the cutting down of the curriculum of the public schools is concerned, I would not advise this,—nor do I wish to criticize the educational methods of the City of Toronto. Personally, I am heartily in sympathy with eliminating some of the branches taught in the city schools. But there are many things which we would call, at first sight, useless, the study of which leads to the cultivation of the mind, and guides the boys and girls along lines which otherwise would not be thought of. We must, however, leave to the student the selecting for himself or herself the profession or calling he or she is going to follow. In my connection with the Federal and Provincial Governments of this country I have met a great many people who have told me they would never have followed their present occupations if it were not for the fact that the subjects governing and suggesting such were taught in the schools. Some bright boy or girl will often take a fancy to a certain subject and make that his or her profession.

Libraries should be established in all of the schools in order that the necessary books may be easily obtained by the pupils. In this way the pupils can have access to a class of literature which, in many cases, their parents could not afford to get for them.

Mr. Garden states that very few children would be able to attend the "Training Schools" on account of the cost, etc. My reply to that is,—that these "Training Schools" would be free to all. The school life now is possibly from eight to fourteen years. If a boy from twelve to fifteen, or sixteen years of age, could be permitted to take industrial training with his ordinary education, it would be the means of properly equipping him for the battle of life. You can call this a "School Shop" if you wish. The pupils would see the actual demonstration of the work and its results. In such a school the student would obtain a practical knowledge of the vocation desired. Now I wish you to understand that this school is not for the boy whose father wishes to make him a doctor or a lawyer,—it is for the boy who desires to walk in the avenues of industrial life. It is, therefore, your business to have such schools established in conjunction with the ordinary schools.

With reference to the present apprentice system; I have had an opportunity recently of enquiring into this system from the Atlantic to the Pacific, and I think it is a thing of the past. Take for instance, any of the large manufacturing centres in Europe and the United States, where the apprentice

system formerly obtained, you will now find industrial training departments established under competent instructors, where expert training is provided in all branches of the particular trade or calling in which the various companies are concerned.

What a boy needs is actual knowledge gained by an opportunity, under proper supervision, of familiarizing himself with the tools and equipment of the trade desired, so that when he enters a shop or factory he will be able to take hold of and discharge the duties assigned to him in an intelligent manner. The teaching of the technical with the practical is what is required; and it is this constant advancement in methods of instruction which is responsible for the decline of the apprenticeship system.

I might state that I recently received a letter from my old friend, Mr. Wm. Kennedy, formerly Master Mechanic for this important Division of the Grand Trunk Railway, in which he enclosed me a cutting from a paper, concerning the establishment, under his charge, of a school for apprentices. I have known Mr. Kennedy all his life and feel confident of the success of the venture under the guidance of such an expert.

Now, I do not wish to exhaust your patience; I am here to listen to what you have to say and not to listen to myself. I simply wish to make my meaning clear to you.

Mr. G. Baldwin,—

I think a good idea would be for the Executive of this Association to notify two or three of the members or ask them to come prepared to say a few words in connection with the paper that is going to be read. In that case we would be better able to discuss the matter.

I, like my friends who have already spoken, feel that education, like a trade, is not hard to carry. The more education you get, the more it will help a man in whatever sphere of life he may travel in. There are lots of boys in schools to-day whether it is from their own fault, the teacher's or parents', fail to get a first-class education. Consequently when they get to be about 14 or 16 years of age they have to get out and push for themselves, they then realize the lack of their education and this is where the night schools come in. I do not think we can have too many of them.

We give the apprentices at the Canada Foundry much the same privileges and facilities as those enjoyed on the Grand Trunk and other railways.

Speaking of myself, I had the three R's—reading, 'riting and 'rithmetic,—drilled into me in the Old Country. I also had some algebra, Latin, French, German, Trigonometry and Euclid thrown at me, which helped to knock some of the R's out. Often a man feels, after years of work, that he has not

got sufficient education to get along with, and wants more. I will tell you what I did. I went to night school at Gladstone Avenue for two winters and sat alongside of children 8 and 9 years of age. It did me good I know. However, there are, of course, a number who would not care to do this. These technical and correspondence schools all help, and I am strongly in favor of Manual Training going hand in hand with our present system of education.

I think if our chairman would take note and notify the persons who are to be asked to speak, it would be much better.

Chairman,—

I may say that unfortunately, the Secretary does not as a rule receive copy of the paper to be read until the last moment. When we do receive copies of the paper in time we have them sent out to different members. This copy of paper which I have in my hand, was only received to-day. I do not know whether the Secretary deserves censure or not.

Mr. Baldwin,—

I think if a card was sent to the different members whom you would like to take part in the discussion, we would be able to prepare for it. I offer this as a suggestion, not as a censure.

Mr. Acton Burrows—

What I said at the Executive meeting this evening was not meant as a censure on the Secretary but on ourselves as well. The Secretary is a hard worked man and his greatest trouble is to get papers far enough ahead to get them sent to the members in advance. I think from our discussion at the Executive meeting this evening we will be able to have this remedied. We have three papers promised now and we shall try and get these papers in advance to the Secretary and shall send copies out. If any member of the Club desiring copies would give his name to the Secretary we would be glad to have copies of the papers sent him, so that he could prepare some data and come ready to speak.

Secretary,—

If these gentlemen who get copies of the paper to be read will send in their names stating they wish to speak it will help considerably.

Mr. G. Baldwin,—

Mr. Burrows says that the Secretary is a hard worked man, and possibly he is. I think that the stenographers are also

pretty hard worked, and those who have anything to say, if they will speak moderately, it will give the stenographers a chance to get it down in good shape.

Mr. J. C. Garden,—

It seems to me that every member should come prepared to discuss the subject of the evening, as each member receives a card notifying him what that subject is. I think every member should have sufficient interest in the Club and the subject under consideration to come prepared to give us the benefit of his ideas.

Chairman,—

I do not see that there is any need of all this discussion. There has been no dearth of conversation in connection with the paper before us. You all get a card every month as Mr. Garden has said and the title alone is sufficient to warrant you to look up the matter and polish up your memory in order to come here prepared to discuss the paper in a proper manner. If a man is in the wrong we want to show him where he is wrong, and this produces arguments. Personally, I think the fact of receiving notification of the subject to be discussed eight or ten days before the meeting, is sufficient.

It was said to-night at the Executive that we might send out copies of these papers in advance of the meeting in order to prepare for the discussion. Now oftentimes when a man receives one of these advance copies, he reads it over and feels that he knows all about it and will not attend the meeting. I know of other associations who send out their papers in advance so that the members can come prepared for the discussion. I, for one, on getting these papers, read them over and feel it is not necessary to go to the meeting as I have all the information necessary. I do not think there is any necessity for sending copies out. Mr. Baldwin may be right in his remarks, but I do not entirely agree with him.

Mr. Clarkson James,—

I attended a convention held at Atlantic City, during Easter week, on School Hygiene, where I had the pleasure of listening to several important scientific papers prepared by some of the brightest minds in the medical and scientific professions. One distinguished gentleman read his paper so rapidly and in such a low tone of voice as to present a difficulty in following his train of thought intelligently. Notwithstanding this, however, another gentleman replied to the paper in a masterly manner. I merely mention this, in answer to the gentleman who has just spoken, to show that when one familiarizes oneself with the

subject to be discussed, there should be little difficulty, if indeed any, in voicing one's own views concerning it. And I consider it a step in the right direction, tending, as it will, to wake up some of your bright young members by presenting an opportunity of expressing their own thought on important subjects.

Mr. G. D. Bly,—

I suppose I cannot say anything more than has already been said along these lines. I am one who has attended the technical school here for some years. I find, however, that men after getting their manual training, as Mr. Garden stated, fail to attend any technical school. They get a little training along the mechanical line they are employed in, but do not care about technical training. I think in the five years I attended the technical school, I only remember two or three middle aged men who attended school at that time. The majority of the students taking the subject I took, were young men who were looking for technical training along the line they were employed in. I, for one, found the education along these lines beneficial, and I know many others did. Many of my associates at that time are now holding good positions.

There is nothing like manual training combined with a technical education. The putting of the apprentice in the shop and having him sweep the floor and be general chore boy takes the life out of him. I think it is time that this is done away with. From the experience I had at the technical school I can say that there are very few men after passing the practical side of mechanical life, take any interest in technical education.

Mr. J. W. Griffin,—

I did not expect to be called upon to make any remarks in regard to this subject. The last speaker, however, put into my head something which I would like to remark upon. We take a young man; for instance he leaves the public school and goes to work. He has not got a technical education and this boy you find has to do the sweeping of the floor. I do not see why another boy who may have a little technical education should not start in at the bottom and do the dirty work. If a boy is disposed to get a technical education at night he would not have the dirty work to do. If he showed ability he will advance himself gradually. A boy can get a technical education in the evenings and can so advance himself. There is one point which I would like to mention, that is, I do not think an employer should classify between a gentleman's son and a poor man's son. The gentleman's son would not want to do

the sweeping of the floors as he would have a technical education. Now I think the employer should not discriminate between the two boys. I think we have all found, as I have in my experience, that we have to take the good and bad as it came. If a man has ability he will get on the top.

I am in favor of a technical education combined with the practical education. You cannot give a man too much education, and I agree with Mr. James that the better the education a man has the better man he will make, whether as a mechanic or otherwise. My work brings me into contact with those who have attended technical schools. They come and tell us they know all about it, but they cannot assemble a machine for instance, yet we should not laugh at them as they will learn to do it well in time. A man is very much better off if it is possible for him to get a technical education. As our friend has said, it is not hard to carry education.

Mr. G. D. Bly,—

Take the plumbers, for instance, you will find a boy going into the shop as an apprentice and the plumber will take the boy out with him to carry a large pack of tools which would be a good load for a man 25 years of age. He makes the boy walk half or three quarters of a mile with them and then run messages for him all day. That is all the boy is allowed to do for one or two years before he is allowed to touch tools. The whole heart is driven out of him. The consequence is that he quits the job and oftentimes runs away from home. If he had some manual training before going into that shop he would have some interest in the work and would not mind carrying the tools for a while.

Mr. Clarkson James,—

Following up what Mr. Bly and Mr. Griffin have said, I would be glad if we would dismiss from our minds the common idea that gentlemen's sons are different from our own sons. Any honest man's son is a gentleman's son, if he possesses the instincts of true manhood.

With regard to the boy just starting in a shop and set to sweeping the floor, and other menial work, instead of devoting all his time to acquiring a knowledge of the trade; I think this should be done away with. In many shops and factories you now find they have old men, unfit for other service, attending to the sweeping of the floors, etc. It is really too bad to see old men sweeping the streets and doing heavy work when they could be found some light job inside. What I want to impress upon you is this,—that we do not wish the boy to be considered an ordinary apprentice when he goes from one of

these schools. We wish to instruct the boy that he may be able to assemble a machine and have a knowledge of all its parts. He will practically be a young mechanic on leaving the school. For instance, in these schools there should be a complete model of a locomotive and other machinery. The boy should be familiar with the manufacture of all their parts and the running of them. How many of you gentlemen whose province it is to handle boys, find in them the knowledge desired. We want to have schools, as I said before, where the training will run concurrent with the point in view. We want, moreover, to show the Government that we are behind our children and wish such schools, and that we desire to advance from the systems of fifty or sixty years ago, by establishing up-to-date methods. We must have advancement; you all know that what we did yesterday cannot be repeated to-morrow. The primary education of our children is like the erection of a building, the foundations are laid in concrete, upon which is erected the steel skeleton, awaiting but the final work of the master builder to complete a structure that will be perfect in all its parts and honorable to the builders.

Mr. N. MacNicol,—

I do not agree with what all the previous speakers have said. Probably I do not understand them as they meant to be understood. I think manual training and public school education should go along together. This I can illustrate best by my own experience. When I went to school often I did not see the sense of teaching the sides of an equilateral triangle were the same length. I learned it in a way but when I went along further and took up the line of machinist I found the use of it. Manual training shows the boy or girl why technical education is needed. If you teach the boy right his mind will broaden and he will see the best way to get results. Now the technical man goes along and in not getting the practical side, falls down, and this applies as well to the practical man not getting sufficient technical education. When I served my time as apprentice I thought everyone should understand that I was a machinist up-to-date. I left the shop where I had served my apprenticeship and went to other places where I got my bumps, and it woke me up to the fact that I did not know every thing. It taught me to examine things more closely and also taught me to master things in detail.

I think a boy's ability could be advanced five or six years if manual training brought out the need to investigate and use of rules. Such things as sweeping the floor and carrying the tools for the plumber is, however, a good thing for the boy. It makes the boy submissive. I have carried the plumber's tools myself and I therefore know from experience.

I think the apprentice system has become a fad. Every line of manufacture is developing its experts from shop point of view. I hardly think our public school system will benefit much as it stands to-day without manual training which will help along this line. Nowadays in some concerns if a boy gets competent in one line they keep him at it. This is the way the apprenticeship system is falling down just because so much speed is necessary and the practical value of the boy to-day is useless unless you can specialize it.

Manual training arouses in a boy an interest in his work. I have failed yet to see any practical results from the apprenticeship system education. The boy feels that he has to take this education whether he wants it or not. He feels when he gets away from school he does not want it any more. However, he feels he must do so in order to keep his employment, and under such circumstances this education does him little good; by this, I mean, had the schools aroused the proper interest in the boys then there, much better results would have followed.

Mr. J. A. Mitchell,—

I do not think I can say much on this subject. There has been some very good arguments put up. I would like to ask Mr. James whether the government has taken any action in putting the manual training system into force.

Mr. Clarkson James,—

I would like to reply to that guardedly, and do not wish you to consider what I say as an official statement. However, I may tell you that the Minister of Education has the question very much at heart, and has lost no opportunity to familiarize himself with the necessary requirements of the subject. He has stated on the public platform that in his opinion the Federal Government should take an interest in it by making the requisite grants by which these schools might be established at certain points in each Province. As to the method of procedure to be adopted, that is a matter for future careful consideration. These schools should be properly equipped with every class of machinery in order to impart a thorough knowledge to the pupil. The Minister's idea is to place before the people of this Province a system of schools which will be best suited to their respective needs. He wishes to give back to them in a measure through the education of their children, what properly belongs to them. It is a matter of fact that it comes from the people and belongs to the people, and, therefore, should go back to the people in such a way as to be of the most benefit to them. It is your duty and the duty of every man, to impress upon the Governments the need for such schools. We have established

manual training in the public and high schools and it has been a success. The farmer formerly had to go to the expense of experimenting to find out which was the best seed for his soil, but now with the instruction afforded in agriculture in the schools, his children can tell him what is the best kind to put in. Governments never lead public opinion,—they try to follow it when the demand is strong enough. We therefore, must show that there is not only a need for this kind of training, but that we strongly desire it.

Mr. J. Duguid,—

You need not expect to get very many pointers on educational matters from me. One thing I would like to say, however, and I hope Mr. James will not take offence, that is, you would have to go to school until you are 35 years of age to master all the subjects which are now taught in the schools. I think it would be better to teach the boys arithmetic and practical mechanics thoroughly than teach them so many subjects. In Stratford it is very difficult to get apprentices who can do simple multiplication. If they cannot get simple multiplication there is no use giving them manual training. We are having a great deal of trouble in Stratford getting apprentices. During the last two years I have taught classes in mathematics, and you will be surprised when I tell you it is necessary to start the class at simple addition, multiplication, etc. It is alright to establish manual training and technical schools but there is hardly a boy who applies for a position as an apprentice who can do simple multiplication. These are boys who have never had a chance to attend school and how are they going to get time to attend the manual training and technical schools? These schools can only be a doubtful benefit to a rich man's son. Manual training is very fine if you have a chance to take it in, but it is no use if you have not a chance to do so. I think what we want in our public schools is geometry and simple mathematics and practical mechanics and plenty of it.

Mr. Clarkson James,—

I think the argument advanced by Mr. Duguid answers itself, and I do not wish to touch it. No mortal teacher can furnish a supply of brains, they can simply aid nature by directing and guiding their unfoldment into the proper channels. However, I wish to say that so far as the public schools in Stratford are concerned, I do not think there are any better in this country. I fear my friend Mr. Duguid, is laboring under a wrong impression concerning manual training schools. There has not been one word said to-night that would even suggest that we desire to establish manual training schools

as against the public schools. These schools will be just the same as the ordinary public schools but will be equipped with apparatus for the teaching of industrial pursuits. You are all familiar with the fact that industrial competition in all countries is compelling more advanced methods in order to hold a place in the business world. The man of ten years ago could not compete with the man of to-day. You must be up-to-date in this progressive age. The man that does not advance with the times will soon be left far behind in life's swift race. The progressive, watchful man will always be successful.

Mr. J. Duguid,—

I do not want Mr. James to consider that I am not in favor of industrial schools. I claim that before the boys start their apprenticeship they have not got time to attend school sufficiently long to be taught simple mathematics, and if they do get a chance to attend, they listen to things which do not benefit them much. Apprentices start in at the age of 15 to learn their trade and the majority of them are not thoroughly posted in mathematics.

Mr. Clarkson James,—

I have taken into account that the average boy's school life will not extend beyond fifteen years of age. Under the proposed system he would have an opportunity during the last four or five years of school life, to take up industrial training. If he does not wish to follow any of these lines but desires to be a doctor, etc., he can go to a high school and fit himself for University training. You see I have drawn the line between the boy who wants to be a doctor or lawyer and the boy who wants to learn a trade.

Mr. J. Bannan,—

I would like to ask Mr. James what age he considers the boy will have a public school education.

Mr. Clarkson James,—

About fifteen. We all aim to send our children to school up to the age of sixteen if we can. There are some parents of course, who cannot do this as the boys must become wage earners before that age. The idea is that these schools shall be free. Now that brings up another avenue of discussion whereby a means will be prepared permitting boys who, on account of family circumstances, cannot attend school, to do so. I know there are many boys who, if they had a chance, would become shining lights. There should be a means provided for assisting

families to send their children to school, when such children show any evidence at all of brightness. You can go into any shop and find a boy who is bright but who has not had a chance. That boy, however, finally makes good but it takes a longer time. Whereas if he had an opportunity of taking an industrial course along the lines chosen by him for his life's work, any special talent which he might possess would be brought into play and he would be better equipped to enter on his vocation, and much valuable time would be saved by being in advance of the rudimentary routine with which the average boy has to contend on first entering a shop. Besides, he would be of greater value to his employers.

Mr. K. D. Clark,—

It occurs to me in connection with Mr. Duguid's remarks that it must be on account of lack of interest if the boys cannot do the simple problems in arithmetic after attending our public schools, and I do not know of any way in which these boys can be made to learn better than having them take manual training with their other public school work. In this way they find the need of the subjects being taught them in school in order to accomplish something which they are taking up in manual training and they will thus take an interest in their regular studies and master them.

Mr. J. Duguid,—

I claim that there are a number of boys who do not have a chance to attend school until they are 14 years of age. However, we have boys who come to us wanting to become apprentices who have passed the entrance examination in the public schools and these as a rule are alright. However, what I wanted to bring out was that these manual training and technical schools would be only beneficial to a class of boys who can attend them, but there are a large number who cannot even attend school until 14 years of age.

Mr. Clarkson James,—

Do not overlook the fact that the law takes care of the child up until the age of fourteen. There is, however, a class of pupils who dislike school work of any kind. If these boys were properly trained and carefully guided along industrial lines they would become first-class men. A great many boys who go to school do not see the need of learning; but, with manual training in the school it not only engages their interest and induces the habit of study, but it also points out the necessity for taking advantage of the opportunities presented of acquiring knowledge which will advance their future prospects and make them honored members of the community.

Mr. J. C. Garden,—

For the last four years we have been examining boys before accepting them for apprentices on the Grand Trunk railway and I would like to give you my experience concerning the same. We have to examine on an average six boys before we can get one who can multiply four figures by four figures correctly, notwithstanding the fact that we have the best educational system in Ontario, on this continent.

Mr. Clarkson James,—

We all know that there are, sometimes, students in a class who do not see the need of education. It is these students, and unfortunately there are a great number of them, who retard the progress of the whole class. When boys of this stamp make application for a position and fail to pass the ordinary educational test put to them the blame is usually placed on the system, instead of placing it where it properly beolngs, on the boys themselves. This not only applies to Canada but to the whole civilized world. If you will read some of the statistics along these lines you will find it is not the fault of the educational system, but of the pupil. Although the law controls their attendance at school up to the age of fourteen, yet there are thousands of boys in Canada, who, before they reach the age of fourteen, have to struggle for their living. Of course there are exceptions, sometimes the proper methods have not been adopted. I have a boy in my mind who was dilatory and would not learn at school and caused the teacher endless trouble. His father removed him from that school and placed him in another where the teacher—a young lady—took him in hand, interested him and he passed his entrance at the close of that term. The first teacher did not pay the proper attention to him, but the second teacher studied the boy, knew how to manage and interest him and to-day he is in a responsible position in Montreal receiving as good a salary as anyone of you gentlemen here.

I may say before I sit down,—and I have never attended a meeting where I have more thoroughly enjoyed myself,—there is no reason why much good will not result from meetings of this kind. They present opportunities of bringing out the best thought of your members and inculcates a stronger desire for better citizenship.

Mr. G. D. Bly,—

I have in mind a man who is working at the electrical trade. The question came up of alternating currents and motors. One day I noticed him examining a book carefully on alternating

current motors and he took it away with him. The next day I said to him, "I suppose you know a great deal about it now." He said, "If I cannot learn about it in the the company's time, I won't learn at all."

Mr. P. F. McCabe,—

If the law takes care of the boy under fourteen years of age, how is it that those little street arabs up to five and six years of age are selling papers instead of going to school.

Mr. Clarkson James,—

It is an absolute necessity in many of the cities and the law can only frown upon it. The pittance they earn on the streets in most cases has to go to help keep a mother or father who are either unable or unwilling to help themselves. There is an association now forming which will, it is hoped, help a great deal in this regard. The law cannot be severe on these boys whose environment is such as to compel them to seek a living in the streets. This is, however, a question, which, if we were to continue now might lead up to socialism, or some of the other much talked of but badly understood questions which are at present agitating society the world over.

Mr. K. D. Clark,—

I understand from Mr. James that the law compels the boys on the streets selling papers go to school a certain number of hours each day. I would like to ask, as a matter of interest, whether these boys are found to be any smarter or more apt in accomplishing their regular school work than those brought up in the average home.

Mr. Clarkson James,—

Any boy that rubs up against the world will acquire a sharpness on the surface. His little mind runs in certain channels which lead up to the best way to get the advantage of you. When such a boy is associated with other boys in school life you at once see the difference. He has very trite savings and they come into action on every occasion, but that is the only advantage—if it can be called such—that he has. I may say, however, that there are many prominent and honored citizens of Canada to-day who obtained their early training by selling newspapers in the streets, and who on account of the strength of character and manliness overcame their condition and took their proper position in life. While others who started life under similar circumstancees chose rather the path of idleness and have failed in consequence.

Mr. J. C. Garden,—

I would like to move a vote of thanks to Mr. James for the excellent paper he has given us to-night. Mr. James has expressed himself as being pleased that he has had the opportunity of spending the evening with us. I hope that the pleasure has been such that it will induce him before long to spend another evening with us, as I feel I am voicing the sentiment of every gentleman present when I say that the evening has been one of the most pleasant in the history of the Club.

Mr. Acton Burrows,—

I have very much pleasure in seconding that motion. I do not wish Mr. James to think from what I said I intended to reflect on the Ontario school system. I think it is a good system. When I came here from Manitoba I was prejudiced against the public school system. I felt I could give my son a good education and sent him to a private school for a year, but I soon saw he was not learning as he should and he was lamentably backward in arithmetic. I know if he had been sent to Mr. Duguid he would not have passed the examination. I took him away from the private school and sent him to the Huron Street public school and after that sent him to the Model school. Before he was at the model school long he was a changed boy. He got along well and passed the entrance examination for the Harbord Collegiate Institute, getting the largest number of marks of any pupil from the Model school. He took manual training at the Model School and thereby learned many useful things. His taking manual training did not prevent him doing well in mathematics, and he was not burdened down with home-work either. He had plenty of time for play. I believe the average boy can carry out a reasonable amount of manual training and not neglect his mathematics.

It has been a great pleasure to all of us to have listened to Mr. James and I think it is a good thing for the officials of the Government to meet the public. I hope we may have the pleasure in having Mr. James with us again at some future date.

Chairman,—

I have much pleasure on behalf of the Central Railway and Engineering Club of Canada in extending this vote of thanks to Mr. James for coming here to-night and giving us such a fine paper.

Mr. Clarkson James,—

As I intimated before when I prepared my paper, I did

so hurriedly and with some misgivings. You know the difficulty one has in preparing a paper of this kind, trying to confine oneself to a general statement of the whole matter,—but I do want to see opportunities afforded every boy (not gentlemen's sons as remarked here to-night) but every boy who has to struggle in order that he may reach the top rung of the ladder of success and it is our duty to see that there are no rotten rungs in it which will make him slip and fall. It is your business and my business to see to this.

I must say again, that it has been a pleasure for me to be here with you. To look into your countenances is sufficient evidence that you have enjoyed yourselves as I have. Progression is the word which should be written on every man's heart. If the little coral insects, toiling incessantly in their work, had ceased operations, there would have been none of those beautiful coral islands in the Southern Pacific ocean. We too are builders, striving to create structures greater and grander than has been, and if we but do our part to the best of our ability, success must be the final attainment.

Chairman,—

In connection with Mr. James' paper we have a motion by Mr. Burrows before the meeting. I will ask the Secretary to have that motion forwarded to the Government.

Chairman,—

The motion of adjournment is now in order.

Moved by Mr. Baldwin and seconded by Mr. Jefferis, that the meeting adjourn until September.