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| <b>LADIES' COATS</b><br>Worth \$35.00, for \$25.00                         | <b>LADIES! Get your Suits</b><br>now, for they will be much higher in the spring.               |
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| <b>LADIES' COATS</b><br>Worth \$25.00, for \$14.98                         | <b>LADIES' SUITS</b><br>Worth \$35.00, for \$22.00  |
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| <b>MEN'S OVERCOATS AND SUITS</b><br>At Less Than the Prices<br>Today of the Cloth That<br>is in Them. | <b>MEN'S WOOL SWEATERS</b><br>Worth \$4.50<br>Sale price \$3.48   |
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| <b>MEN'S OVERCOATS</b><br>Worth \$25.00<br>Sale price \$19.00   | <b>MEN'S HEAVY WOOL SOX</b><br>Only 39c.  |
| <b>MEN'S OVERCOATS</b><br>Worth \$20.00<br>Sale price \$15.00   | <b>MEN'S HEAVY WOOL SOX</b><br>Worth 75c. . . . for 59c.  |
| <b>MEN'S SUITS</b><br>From \$15.00 to \$38.00<br>Less 20 Per Cent. During<br>Sale.                    | <b>BOYS' SWEATERS</b><br>Worth \$2.25, . . . for \$1.98   |
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## RECONSTRUCTION IN CANADA CAUSING CONSIDERATION

Dr. A. B. McCallum Reviews the Situation in Canada in  
Regard to the Application of Science to Industry, and  
Urges Active Work Speedily on Part of Canadians.

The following interesting and illuminative summary of the work of the Canadian Council for Scientific and Industrial Research appears in The Toronto Globe's annual financial survey issued on January 2nd. Dr. A. B. McCallum, the administrative chairman of the Council, reviews the situation in Canada in regard to the application of science to industry as follows:

"Reconstruction and development" in Canada in the new era of international striving for supremacy in the arts of peace means to the Canadian Honorary Advisory Council for Scientific and Industrial Research much more than the "development" of the building up again of what existed before, and up to the outbreak of war there was constructed in Canada no national organization for research work. The glowing path of development runs wide and far, but the Council's research path has to be blazed through a comparatively unexplored forest. It is almost entirely new ground to be covered.

Where Germany and, though perhaps in lesser degree, the United States had builded before the war, great organizations for industrial research founded on wide-visioned realization of the commercial value and necessity of applying science to industry, in Canada, as in Great Britain, state encouragement and individual enterprise had, until the war started, been content in the main with a laissez-faire policy. Germany had her trained technologists and research workers by the thousands in every field of industry, and through the organized application of science to industry, was winning her trade victories in every foreign mart.

In the United States, which early took a leaf from Germany's book, great universities like Harvard, Yale, Chicago, Columbia and Cornell had staffs and equipments in pure and applied science, which kept pace or almost kept pace with the demand from great American industrial establishments for trained scientific assistants, chemists, electrical engineers, metallurgists, etc., to solve industrial research problems. The annual budget of the Massachusetts Institute of Technology, for instance, exceeded before the war, and still exceeds, the total of the annual expenditures of all the Faculties of Applied Science in Canada. There are some two thousand research laboratories in connection with large industrial concerns in the United States, and not two hundred in Canada. Individual firms expend annually sums ranging from \$25,000 to \$500,000 for research.

In Canada a score of years less than twenty students have received the advanced Ph. D. degree in science from the University of Toronto, and fewer still from McGill. Not two hundred of Canadian firms have research laboratories, and only about ten per cent have routine laboratories, chiefly for the testing of materials. If Canadian industries were to seek for a supply of trained technical men capable of applying the highly advanced scientific knowledge to industrial processes sufficient to meet even their most ordinary needs, the number of adequately trained men would not be sufficient to satisfy five per cent of the demand.

That, briefly put, is the situation with regard to the application of science to industry in Canada. That is the situation which has confronted the Research Council since its creation in December, 1916. It has been, and is, the crux of all the problems of scientific and industrial research in Canada, handicapping the carrying out of the large research program planned for the past year and for the coming year, jeopardizing Canada's position in the international rivalry for export trade and demanding prompt remedy if the full measure of our opportunity is to be grasped. In resources of capital and materials, in all the natural advantages for industrial supremacy we are in an enviable position as compared with our trade competitors. But in regard to the vital question of scientific organization of our industrial processes of finding new uses and hence, new markets for the raw materials and the by-products of manufacture, and of keeping pace with the advances made in other countries through research, we have as yet hardly touched the fringe of opportunity.

Confronted with this situation and with a slowly awakening public and individual realization of its portent, the main task of the Council this past year has been, while carrying out the immediate needs of research work with the means at hand, to pave the way for meeting adequately the great needs of the future. The goal has been a supply of trained men for research work, adequate equipment and facilities for research and the enlistment of industrial organizations in co-operative effort to solve common problems, the solution of which lies in the application of science to industry. The great forward step taken has been to promote the establishment of a Central Research Institute at Ottawa, combining the functions of the Bureau of Standards at Washington and of the Mellon Institute at Pittsburgh.

The proposal for such an Institute, submitted to the Government in November last, was the result of many months' careful investigation by the Council.

In view of the situation above outlined, the argument advanced in support of it is so obvious as to need no restatement here. There has been a protest and appreciative response to the proposal by the Government, and by all the public interests concerned. There is good reason to believe that the Institute will be established with an expenditure of \$500,000 for a four-story building, having initial provision for fifty laboratory rooms and with plans so drawn as to provide for expansion as the needs develop. The cost of the scientific equipment is estimated at \$100,000, and the cost of maintenance, salaries, etc., at about \$100,000 per annum for the first few years.

The establishment of the Institute is the necessary first step towards placing industrial research work in Canada upon an adequate and permanent basis and towards enabling the Dominion to keep abreast of similar progressive methods in the United States, Great Britain, Japan, France, Australia and her other trade competitors. It will doubtless be followed by the organization of trade guilds or associations for research in each branch of industry, formed to pool resources in solving common problems and to take advantage of the laboratory equipment and opportunity offered by the Council's proposals, by the Government-maintained Institute.

A further necessary step will be the working out of the Council's plans for more adequate provision by the Universities for the training of qualified scientific workers. In the more generous investment of state funds for this purpose, starting, say, with Toronto, McGill and L'Escole Polytechnique in Montreal, lies the hope of the world's strenuous and pitiless trade warfare the nation's leaders in scientific and industrial research.

As a result of the Council's initiative, Governmental action was taken June last to secure federal co-operation with the government of Saskatchewan and Manitoba in establishing a demonstration plant in the Souris coal areas of southern Saskatchewan, to give the public a practical demonstration of the possibilities of carbonizing and briquetting the western lignites or heating, in domestic furnaces. This year will see a plant established with a capacity of \$400,000 and an annual output of 20,000 tons of coal equal to the Pennsylvania anthracite and marketed in Regina or Moosejaw. At least ten dollars per ton less than the imported anthracite is now costing. The success of the initial plant, about which there can be little doubt, will lead eventually to the development of the immense and little realized latent lignite resources of Saskatchewan and Alberta, relieve for Ontario and Quebec the present coal famine through limited American supply and save to Canada the five or six million dollars now annually going to the United States for coal for the prairie provinces.

A systematic study of the rate of reproduction and growth of Canadian forest trees of the commercial species has been undertaken through scientific survey of some eighty square miles of an old-cutover lumber district on the Petawawa military reserve. The data being secured will in the course of a few years give, for the first time, the essential definite information enabling the Dominion and Provinces to make a scientific and practical assessment of the forest wealth, now in danger of exhaustion through reckless waste and disregard of adequate conservation systems, can only thus be preserved as a great and permanent national resource.

The tar for research, initiated in 1917, has been continued with satisfaction. The results which will doubtless lend in the near future to the application to various plants in Canada of a new electrical process for the recovery of valuable by-products now lost in the destructive distillation of coal, wood, etc. The research on sound measurements and for signalizing conducted in 1917, by Dr. Louis King of McGill has made further progress this year and forecasts a new type of sirens for use in the St. Lawrence River and Gulf. Research work connected with the recovery of industrial alcohol from the enormous sulphite liquor waste of our Canadian pulp mills points to the installation of recovery plants and the production in Canada, at decreased cost to consumers, of the alcohol increasingly needed for industrial purposes and as a substitute for motor fuel.

There have been a score or more of other phases of industrial research initiated or continued during the year, each having a practical bearing on some branch of national production. More should and could be done, were trained men and money available. The Council's budget for the year has been under \$100,000. In Great Britain Parliament has recognized the need and the opportunity by creating a separate Department of Scientific and Industrial Research and has voted one million dollars per annum for five years to be expended by the Research Council. In Canada we, too, are learning the obvious lesson taught by the British and already adopted by the British industry. The path has been blazed for replacing rule of thumb methods in Canada by scientific investigation.

## COMMON COUNCIL SPECIAL MEETING

Commissioners Thornton and Jones Sworn in Yesterday Afternoon—Commissioner McLellan Makes Address and Wishes New City Fathers Success.

At the special meeting of the Common Council held yesterday afternoon the two new commissioners, Messrs. Thornton and Jones, were sworn into office and assumed their duties. Mr. Thornton as Commissioner of Public Safety, and Mr. Jones as Commissioner of Water and Sewerage. Retiring Commissioner McLellan extended his congratulations to the new members of the council and the courtesy and kindness of the council members might be said to have been the main theme of the day. The new members were read by the Mayor, the new members of the city solicitor but on the advice of the city solicitor it was disregarded, and they were duly sworn in to office. Commissioner Bullock was given authority to amend the Sunday schedule of the ferry boat and Commissioner Fisher was authorized to call for tenders for two new stone crushers.

Mayor Hayes presided, and there were present Commissioners McLellan, Bullock and Fisher.

Before the minutes were read, Commissioner McLellan asked permission to make a few remarks in the way of farewell address, and this was granted.

He said it had been customary for one vacating his seat at the board to make a brief statement, and to be continued of the courtesy and kindness of the council members might be said to have been the main theme of the day. The new members were read by the Mayor, the new members of the city solicitor but on the advice of the city solicitor it was disregarded, and they were duly sworn in to office. Commissioner Bullock was given authority to amend the Sunday schedule of the ferry boat and Commissioner Fisher was authorized to call for tenders for two new stone crushers.

While he had been defeated, he had the satisfaction of knowing that he had gone down in defence of a principle which he believed to be correct, although future developments might cause him to change his mind. To his successor in office he extended his best wishes and expressed the belief that the requirements of the office, to Mr. Jones he extended congratulations, and assured both men that his words were sincere. In closing he extended to Mayor Hayes and his brother commissioners thanks for the courtesies received while a member of the board, and his best wishes for a happy New Year.

Common Clerk Wardrop then read the official returns of the election as follows: H. H. McLellan, 2,562; John Thornton, 2,421; E. J. Hilyard, 2,621; John B. Jones, 3,268.

On motion of Commissioner Fisher the report was adopted and Messrs. Thornton and Jones declared elected. It was then moved by Commissioner Fisher that the newly-elected members be sworn in. Before this was seconded, Mayor Hayes read a letter which he had received from J. H. Pritchard protesting against the swearing in of Messrs. Thornton and Jones, on the ground that the common clerk had not certified the recall petitions as sufficient; that the ballot was erroneous; that when the official count of the votes was declared by the clerk, the clerk the incumbent by receiving a minority of votes is thereby removed from office, and the council would not have a quorum; that it is impossible to have two recall elections at the same time under the Act.

He reported having taken the matter up with the city solicitor, and the latter had advised that the new men be sworn in.

On motion of Commissioner Fisher the communication was received and filed.

Common Clerk Wardrop then swore into office the two new commissioners. After the swearing in process had been completed, the several commissioners addressed the council.

Commissioner Thornton said he appreciated the kind words of his friend Mr. McLellan and the kindly spirit in which he had accepted the verdict of the vote he had received, and felt that in the course of time the late commissioner would change his mind in regard to the recall matter. He was glad that during the campaign there had been no personalities introduced, and said he would do his best to merit the trust reposed in him by the electors of the city.

Commissioner Jones said he would endeavor to serve the best interests of the city, and appreciated the kindly expression of good will from the retiring commissioner, Mr. McLellan. In carrying out the duties of his office he would always have in mind the people who had elected him.

Commissioner Fisher welcomed the new members and expressed his regret at the retirement of Messrs. McLellan and Hilyard.

Commissioner Bullock endorsed what had been said by the previous speakers.

Mayor Hayes said he was pleased with the friendly and tolerant spirit shown in the remarks of the retiring and incoming commissioners.

Commissioner Thornton was then elected to fill the office vacated by Commissioner McLellan, and Commissioner Jones that vacated by Commissioner Hilyard.

An application from W. H. Finlay, of Fredericton, for the position of Chief of Police, was referred to the

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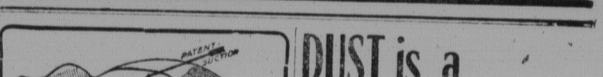
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Commissioner of Safety.

Mayor Hayes announced that he had appointed Inspector Caples acting chief until the new commissioner took office, and this matter was now in the hands of Commissioner Thornton.

Commissioner Bullock moved that the ferry schedule for Sunday be revised, and that the first trip be made from the West Side at 7:30 a.m., and from the East Side at 7:40 a.m., and the last trip from the West Side at 10:35 p.m. and from the East Side at 10:45 p.m. until May 4th next. Carried.

On motion of Commissioner Bullock Commissioners Thornton and Jones were appointed to fill the places of Messrs. McLellan and Hilyard, on the committee for the sale of the fisheries.

An application from the New Brunswick Telephone Company for permission to place four poles on Water Street, West, was referred to committee.

Commissioner Fisher was authorized to call for tenders for two new stone crushers for his department.

On motion of Commissioner Fisher it was decided to notify John A. Sullivan, that the city council was now in favor of municipal ownership of the street railway.

Commissioner Thornton asked about the temporary office room and arrangement made for him to use the mayor's ante-room for a few days.

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Plans were made for him to use the mayor's ante-room for a few days.