

in itself the most powerful weapon that has been or ever can be wielded by mankind in struggling with the great problems which nature offers on all sides for solution." It would be a great pity if, through national short-sightedness, the centre of scientific research should pass outside the British Empire, a contingency of which the President of the Royal Society of Canada warned us that there was grave danger.

A Royal Commission, appointed in 1870, and presided over by the Duke of Devonshire (the seventh duke), recommended the establishment of a Council and Minister of Science; but action was, to the deplorable loss of Great Britain, postponed until after the war, when a Council was constituted by the Imperial Government, followed by the appointment of a similar Council in Canada to which I have referred.

While in the United States tens of millions have been appropriated by Congress to solve scientific problems, in addition to immense endowments by individuals and large expenditures by private companies, the Imperial Parliament voted five millions to promote research, and the total vote by the Dominion Parliament to the Honorary Council of Industrial and Scientific Research was a little over \$90,000.

In his able address to the Institute last session, Professor C. A. Zavitz showed that, as a direct result of the scientific work of the Ontario Agricultural College, there had been an increase of several millions of dollars in the crop production of Ontario, that is, over what it otherwise would have been. The actual results prove that the application of science to improve the yield of barley (to give only one instance in the past fifteen years) has already brought to the Province a sufficient sum of money to maintain the Ontario Agricultural College for 190 years.

The other day I noticed an estimate that after the war the total of the Canadian debts, federal, provincial and municipal, would exceed five billion dollars, five times the staggering amount imposed on France by Bismarck after the Franco-Prussian War. The amount to be paid by us is, therefore, thirty-five times per capita the amount which the Germans thought would bleed France white. To enable us to pay the interest on these immense debts, such instances as I have mentioned of the application of science to industry must be multiplied, production must be increased, and waste eliminated.

We have many water-powers, the kinetic energy of which now goes to waste. British scientists showed us years ago how by the electrical production of nitrates from the air, this precious kinetic energy now wasted, could be converted into wheat. The Germans appropriated these British inventions, not only to increase food production, but also to manufacture explosives, but we in Canada have so far taken no advantage of them.