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SECOND PRIZE

EMPIRE ESSAY COMPETITION

CLASS "A"

Knowledge

"INDUSTRIALIZATION IN CANADA"

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PRÉCIS OF ESSAY

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comparatively negligible exploitation of these resources -
importance of considering rate of industrialization when
gauging degree of progress - phenomenal growth of industry
in Canada - corresponding betterment of living conditions -
comparison of leading industries in 1929 and 1942 -
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INDUSTRIALIZATION IN CANADA

Nature has always been generous with Canada. Great expanses of virgin forest, innumerable rivers and lakes, and untapped mineral resources of incalculable extent, all characterize the Dominion of the North. Even now in these days of scientific equipment and aerial surveying, much of Canada remains unexplored, let alone adequately developed.

For Canada is indeed a huge country, covering $\frac{1}{14}$ of the world's land surface. Canada is still in the stage, which most nations in the world have passed, of being able to talk truthfully of "unlimited resources". In fact, the main features of Canada's wealth lie in the richness, the immeasurable volume, and the comparatively negligible exploitation.

But what are resources without the hand of man to transform them into the articles of our mechanical civilization? It is useless to attempt an estimate of the prosperity of a nation by merely considering its resources. Rather it is necessary to gauge the degree of development of those resources by man. And, furthermore, in considering the prosperity of a nation in the light of the degree of exploitation of resources (i.e. growth of industry), we not only have a measure of the material wealth but also of the cultural development, since the two factors are complementary and inextricably related.

Canada, in the short space of the last decade or so, has exhibited a remarkable growth of industry and an expansion of internal and international activities. No better description of the conditions which Canada has left behind could be found than the following excerpt by F.S.Keith in the ENGINEERING JOURNAL for June 1937:-

"In 1887, Canada was in a period of depression, but the gross value of manufactured products was around \$400 millions

The steam engine and small water powers turned the wheels of industry Manual labour earned less than \$1 per day There were no gramophones, wireless, cameras, radios, aeroplanes or submarines, no electric house appliances and no air-conditioning Rugged individualism flourished and sixty hours was the minimum week's work."

Contrast this depressing picture with conditions today in Canada. The value of exports alone in 1943 was \$3490 millions. Living standards, working hours and wages in Canada today are comparable to those anywhere else in the world. And as for rugged individualism - almost all of Canadian industry of any importance was socialized and managed successfully by the Canadian government during the Second World War. So we see that Canada has come a long way since 1887.

An examination of the following statistics will indicate the phenomenal growth of industry in Canada, even since 1929. The first table lists Canadian industries, classified according to the net value of production in 1929.

INDUSTRY	VALUE - % OF TOTAL
1. Foodstuffs - agriculture	23
2. Wood, pulp and paper	20
3. Iron, steel, heavy industry	15
4. Minerals and metals	14
5. Textiles	10
6. Electric Power	6
7. Chemical industries	4

The corresponding table for 1942:-

INDUSTRY	VALUE - % OF TOTAL
1. Shipbuilding	6.5
2. Pulp and paper	6.45
3. Chemicals	4.9
4. Non-ferrous smelting	4.9
5. Electrical	4.3
6. Machinery	4
7. Aircraft	4
8. Primary iron	3.9
9. Steel products	3.5
10. Sawmills	3.45
11. Automobiles	3.2
12. Copper products etc.	3

There are three striking features which are immediately obvious when these statistics are compared. The first, of course, is the transference of economic importance from primary industry - food products, agriculture, and forest products - to the heavy secondary industries - metals, manufactures of machinery, heavy chemicals etc.

The second apparent development may be seen by taking the percentage of total value of the leading industries in 1929 and 1942. In 1929, agricultural industries were worth 23% of the total. In 1942, shipbuilding was worth only 6.5% of the total. Continuing down the list for 1929, we see that the percentage of the total drops rapidly and the seventh most important industry, chemicals, is worth only 4% of the total. However, in 1942, there is a gradual decline until copper products, in twelfth place, is worth 3% of the total, only 3.5% different to the first industry as compared with 19% difference between first and seventh in 1929.

To put it briefly, this means that the actual intrinsic, monetary value of industry has become spread over a much wider field than in 1929. In other words, Canada is now not dependent on one or two staple industries to finance her whole economy, but has spread development over many more industries.

The third feature arising out of these statistics may be seen on adding the percentages of the total value of industry. In 1929, the seven industries listed accounted for 92% of total industrial activity. However, in 1942, the first 12 industries accounted for only 51.1% of the total.

Furthermore, the actual total value of industry in 1929 was something in the region of \$1000 millions, while in 1942, it had jumped to \$2605 millions. It is thus apparent that there has been a vast expansion in favour of new industries and that the actual number and variety of industries has increased beyond all reasonable expectations for that short period of 13 years.

In comparing so thoroughly the value of industry in 1929 and 1942, the point which has emerged is that Canadian industry has been accelerated in a phenomenal manner. As specific examples of this unprecedented growth, let us consider the industries which are listed first and second for 1942.

The first is shipbuilding. In 1939, there were only 30 drydocks in the whole of Canada, employing only 4000 men. At the end of the war in 1945, after 1000 new ships had been built and \$10 millions had been expended on the expansion of the industry's facilities, there were 90 shipyards employing 100,000 workers.

One particularly busy hive of activity in the Canadian shipbuilding industry is Prince Rupert, a port on the Pacific Ocean at the northeast corner of British Columbia. Most Canadians have never even heard of this place, yet a 10,000 ton ship was launched there every two days at one period

just after the war.

In 1942 alone, the shipbuilding industry was worth \$166 millions to Canada. So much for shipbuilding. Let us look at the pulp and paper industry.

Prior to 1942, the world's leading producer of newsprint was U.S.A. After that year, however, Canada's production soared to three times the value of the industry in U.S.A. Newsprint is now about 77% of the total production of 105 paper and pulp mills in Canada.

These two examples alone suffice to give an idea of the great expansion which is common to all phases of Canadian industry.

Perhaps the most amazing increase in activity was in the radio communications industry. In 1940, the value of this industry was \$1 million. Yet in 1944, only four years later, a conservative estimate was \$400 millions!

In the important field of exploitation of mineral resources, the present situation augurs well for Canada's future. The following statistics of the mining industry, for 1932 and 1942 illustrate the great expansion. (Value is in millions of dollars.)

MINERAL	1932	1942	MINERAL	1932	1942
1. Gold	63	186	7. Platinum etc.	2	19
2. Nickel	7	69	8. Lead	5	17
3. Coal	37	63	9. Petroleum	3	16
4. Copper	15	60	10. Natural Gas	9	10
5. Asbestos	3	23	11. Silver	6	9
6. Zinc	4	20	12. Mercury	-	3

From the table it is obvious that in recent war years the value of the gold production has increased enormously, about three times in one decade. Gold is also three times as valuable as the next metal, nickel, and in both products

Canada stands high. She is the world's chief producer of nickel, and the second biggest producer of gold.

Nickel has also been produced on a much greater scale in one decade, the value having increased nine times.

Last mention is saved for the three most important minerals in industry in any country - coal, petroleum, and iron ore. Firstly coal.

The probable coal resources of the world are given in the "Report of the Commission on the Coal Industry" (Sydney, Australia - 1930) as follows:

WORLD'S COAL (in thousand million tons)

North America	- 5073 (including U.S.-3,838: Canada, 1,234)
Asia	- 1279 (including Siberia 174, China 995)
Europe	- 784
Australasia	- 170
Africa	- 57
South America	- 32

Thus it may be calculated that Canada is estimated to possess 16% of the world's coal reserves, and when this figure is coupled with the area of the country (7% of the world's land surface), it can be seen that Canada is very well-off for coal.

The main coalfield is in Alberta, where it is estimated there are 46 thousand million tons of workable coal. This makes Alberta one of the biggest fields in the world, and development of the coal is proceeding rapidly.

The important iron and steel industry is also growing rapidly. The main deposits of iron ore are at Bell Island, Newfoundland, and at Steep Rock, South-west Ontario. The deposits at Steep Rock are of a high grade character and it is anticipated that such ores will be in great demand by the steel-makers of U.S.A. who are running short of hematitic ores in their own territory. An ambitious developmental program requiring the capital outlay of \$7½ millions

is underway at Steep Rock. Extensions are also being made at the chief ore-smelting centres viz. Hamilton (Ontario), Sydney (Nova Scotia) and Sault St. Marie (Ontario).

Canada is also richly endowed with petroleum, the life blood of modern industry. In this field, too, development has proceeded apace. This industry is centred at Turner Valley in Alberta, which accounts for more than 96% of Canadian production. Output rose from 1.3 million barrels in 1936 to 10 million barrels in 1943, and is still climbing.

It is interesting to note that while the value of coal production jumped from \$37 millions to \$63 millions between 1932 and 1942, a rise of 83%, the annual value of petroleum during the same period rose from \$3 millions to \$16 millions, an increase of 430%.

But what of the power supplies for all these industries? Electric power is supplied almost entirely by hydro-electric plants. Hydro-electric power possibilities are immense in a huge country like Canada with its innumerable mountain lakes and rushing rivers. It is estimated that the potential hydro-electric power of the Dominion is in the region of 40 million available horse-power at ordinary minimum flow. The following statistics (abridged from the ENGINEERING JOURNAL - 1937) give an idea of the enormous strides which have been taken in the last few years in the exploitation of this cheap power.

HARNESSED POWER			AVAILABLE Power
1900	1920	1943	
173, 323 h.p.	2,515, 559 h.p.	10,214,513 h.p.	39,511,700 h.p.

This harnessing of water power represents a real saving in mineral fuels. Moore, in his "CANADA'S MINERAL RESOURCES", states that the hydro-electric power of the dominion is equivalent to about 135,600 short tons of coal per day. The 10 million horsepower harnessed from 1943 therefore represents

a saving of 60,000 tons of coal per day! Canada is the second hydro power nation in the world (1st, U.S.A.) and the first on a per capita basis.

Although most of the statistics so far used in this essay have been prior to about 1945, the intensive development is still going on in Canada. In evidence of this, a recent Canadian visitor to Australia (Mr. P.T.R. Pugsley, an accountant here for the world congress of the Junior Chambers of Commerce International, of which he is world president) was quoted in the Melbourne "Argus" of 3rd September, 1952, as saying: "While the rest of the world is experiencing trade difficulties, Canada is having the greatest boom in its history."

Such a brief survey can touch upon but a few aspects of the industrialization which is going on at present in Canada. Fortified by the facts, let us now consider the motivating causes behind all this activity.

Before the Second World War, Canada was in the economic stage of exporting her raw materials to manufacturing nations without processing them, and then buying back the finished products. In this state of affairs, the Canadian budget usually had a deficit. The Second World War changed all this.

Almost overnight, because of the part she played in the war, her industrial economy grew up, so that Louisa Peat ("CANADA - NEW WORLD POWER") was able to say, "She is the second exporting nation in the world."

Her total export values in 1939 were \$925 millions, but in 1943, they had risen to \$3490 millions, an increase of 270% in the short space of 4 years.

Thus we see that it was undoubtedly the Second World War which gave Canada's industry such a mighty impetus.

On 10th September, 1939, Canada declared war on Germany. Besides assisting the cause of the free nations

against the fascist dictatorships by sending fighting men on land, sea and air, Canada aided in another way by her policy of Mutual Aid to the allies.

British experts in every field came to Canada and imparted their technical knowledge to the Canadians who then employed this knowledge in building up industry to such an extent that the former debtor nation became the chief supplier of food and manufactured goods to Britain before U.S.A. entered the war.

The key to this miraculous transformation lay in the policy of the Canadian Federal Government. During the war, all private industry of any extent or importance at all was co-ordinated in a huge scheme for co-operative effort. This socialization for emergency purposes was carried out with the full consent of the people.

Existing factories were developed, those lying idle were revived, others were remodelled to meet special needs, new ones were built and altogether, Canadian industry was subjected to Government drive, regimentation, and control. From then on, the state controlled not only price and wage levels, but it also allocated raw materials and such goods as could be spared for the needs of the civilian population.

After the war, the government commenced a program in direct contrast to that of the war period. Industry was handed back to private enterprise - not all at once, for the process is still going on. And private enterprise has been quick to take advantage of the great improvements which the government had made while in control.

Another factor which has contributed greatly to the increased prosperity of Canada has been her close proximity to U.S.A. Canada's only close neighbour is U.S.A. - but what a neighbour! The American colossus is by far the greatest manufacturing nation in the world.

U.S.A. - by hostility in the early years, by friendship in the later - has contributed towards the rise of

a state in the north, The extent to which Canada depends on U.S.A. for the stability of her economy may be seen by the fact that she uses American money, i.e. deals in dollars, and (to take a sample year) in 1943, her exports to U.S.A. were \$1,149 millions which was 33 $\frac{1}{3}$ % of the total value of exports.

Therefore, the good will of American buyers and the economic needs of the U.S. import market have played a large part in determining and encouraging the growth of Canadian industry.

Unlike most nations in the past, Canada has passed comparatively rapidly from the "colonial" stage, in which raw materials are exported in exchange for manufactured goods, to the "industrialized" stage, where a large proportion of the exploited resources are processed and exported as manufactured goods. This evolution in Canada's economy in the short space of a decade or so is illustrated well by export figures. In 1939, the value of exported raw materials was \$274 millions, and the value of exported processed products was \$671 millions. In 1943, the value of "raw" exports had risen 90% to \$519 millions. But the value of processed materials had soared to \$2,971 millions, an increase of 360%.

It will be readily apparent that this phenomenally rapid industrial growth has had profound effects on the Canadian people. The population of Canada is in the region of 11.75 millions, and when this low figure is taken in conjunction with the value of Canadian industry, it will be seen that the Canadians are now enjoying a very high standard of living.

In point of fact, wages are higher than in Europe, but are about 15-20 per cent lower than in U.S.A. Corresponding to the high wages, prices are very low. The average worker's income is in the region of \$1500 per annum and prices are low. (To take examples, a typical fuel bill is about \$20

per season, and an electric power bill about \$3 per month -
\$1 = A.9/-)

Departing from purely monetary considerations, we see that in such fields as education, tolerance of racial differences, and external attitude, Canadian people have progressed to a marked degree.

When considering the effects of industrialization on the people of Canada, we must remember that the "people" are not a homogeneous whole, but are divided into two main groups, racial in nature, which have not blended in the passing of time, but have rather tended to drift apart.

This is shown by the fact that French and English are spoken with equal frequency. The French and the British do not collect together freely, but tend to live apart and not to mix.

The effect of industrialization on this situation has been a growth of closer understanding and co-operation between the two cultural groups. With prosperity in the country as a whole, these differing groups can forget to blame each other for internal conflict and unrest which is characteristic of periods of recession. In a nutshell, the effects of industrialization on the Canadians have been beneficial, extremely so - much higher standards of living, plenty of employment, closer understanding between racial groups and better facilities for education and participation in external affairs.

But what of the effects on people outside Canada, especially the British Commonwealth, whose members are so closely linked?

Canada's home market, being so small, cannot absorb an output that is the result of the exceptional circumstances in which the industry was created, so in this field, she is at the mercy of the export market. In this respect, Canada is similar to U.S.A. Coupling this

similarity to the geographical proximity of the two nations, we can easily realize why Canada is a member of the dollar area.

But although Canada's economic interests are predominantly American, stronger ties of sentiment, common ancestry, and cultural similarities link her intimately with Britain and the British Empire. The effect of industrialization on Britain during the war was not merely beneficial, it was a godsend. Before the entry of U.S.A. into the war, Canada supplied Britain with huge quantities of both raw and processed materials.

Now, after the war, Britain is Canada's second largest customer and thus is economically as well as sentimentally linked to the Dominion of the North. Canada is on equally good terms with the other countries of the Commonwealth - Australia, New Zealand and South Africa.

The foreign policy of Canada is based on three fundamentals (1) The assertion of a distinct political status in international affairs. (2) Protection against menace by overseas powers, and (3) Economic considerations connected with the development of natural resources and the maintenance of the export trade. In the light of these premises, we can appreciate what the Secretary of State for External Affairs (L.S. St. Laurent) said in the House of Commons in April, 1948, when he introduced his survey of world affairs,

"It is now, I believe, an accepted fact that practically everything of importance that happens in the international sphere is of interest to Canada - often direct and immediate interest. For us there is no escape, even if we wish to seek one, in isolation or indifference."

Canadian industry, and thus Canada herself, has entered into a new phase. Being composed of elements that are many and varied, the economic life of the country is singularly

complex. It involves international relationships which enlarge its horizon and raise it to a position which is far greater than the modest figure of the population would justify.

The North American Dominion is now a world power, choosing by free decision on its ideals and interests, a place with those great powers which have dominated its early years of growth. Canada has reached maturity.

THE END.

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