

What's Going On in Canada

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My pleasure in being here today is equalled only by my apprehension of the title of my talk. To tell you what's going on in Canada in a half-hour is an ambitious, if not impossible, job. I must, therefore, in proper prudence and modesty, limit my observations to a few aspects of Canada's recent economic progress. I shall naturally emphasize what is happening to our road and street systems and what we in the Canadian Good Roads Association are doing to help in their development.

There is a great deal going on in Canada, as you are probably by now well aware. Much has been said and written in the past year or so about accomplishments north of '49. And a lot has been said by our own people. It seems that we are emerging from an age of immoderate self-effacement to one of adolescent extroversion.

There are some in Canada, unfortunately, who have taken our press notices too seriously. They have overlooked the fortuitous fact of the growing economic strength of the country. They have, perhaps, forgotten that we did not create the riches of the land; they were placed there by nature.

We have been singularly blessed in our choice—if that is the word—of neighbors and friends. From both Britain and the United States we have inherited concepts of responsible, representative government; we have been nurtured in a climate of religious, intellectual and political freedom. We have inherited the best of two societies.

And, fortunately for us, our neighbors built their society on the proposition that all men were endowed by their Creator with certain inalienable rights. In all history there has not been a case comparable to that of two nations, such as the United States and Canada—two sovereign states—living in an atmosphere of understanding, co-operation and friendship.

ECONOMIC DEVELOPMENT

You have read and heard in recent years about our coming of age. I do not wish to labor facts that have now become commonplace. I

should, however, like to bring into focus a few of the salient facts of our economic development.

Since 1939 the Canadian economy has advanced at a much faster rate than at any time in our history. War was the catalyst in this remarkable reaction. War telescoped into a relatively few years a development that would normally have taken a quarter of a century. In the 15-year period from before the war to date, our gross national product has increased five times. In constant dollars it has more than doubled. On the same comparative constant basis, our manufacturing industries have increased their output two and a half times.

During this same period the population of the nation has increased by about one-third. It is apparent, therefore, that the per capita productive capacity of the nation has been increasing steadily.

During this eventful period the character of the nation's economic activity has been changing. Not many years ago Canada was primarily an agricultural country. In 1952 only 13 per cent of our gross national income came from agriculture, which hardly qualifies us as a farm community. Total income in 1952 from agriculture, forestry, fishing, mining, quarrying and oil wells—the so-called extractive industries—was just over 18 per cent of our national income. In the same year manufacturing accounted for nearly 30 per cent of national income. The rest came from construction, transportation, retail and wholesale trade, finance and other activities.

In other words, in a single generation Canada has changed from a country producing and selling mainly primary products to a country producing and selling mainly processed or manufactured goods.

While we have many natural advantages, such as an abundance of raw materials and hydro-electric energy, it should be noted that hard work and enterprise have been necessary to convert these ingredients into usable commodities.

The components of production—manpower and raw materials—have been brought together by transportation—rail, road, water and air. The rapid industrialization of the country has been possible because of excellent means of communication and transportation.

No country in the world has greater variety and greater contrast of transportation. Here is everything, from dogs to turbo-jet aircraft. At one time or another we have used camels and oxen. In many parts of the country the snowmobile and sled are accepted wintertime conveyances.

The latest comer and now the most widely used instrument of transportation is the automotive vehicle. The 20th century development

of the automobile and the far-reaching changes it has brought to our economic and social activities, roughly parallel the same events in the United States. Essentially the same stresses and strains have occurred in our road and street systems. Our road problems differ only in degree, not in kind.

ROAD DEVELOPMENT

The Canadian population, as you know, is spread thinly over a very large area. Adequate transportation has always been important to the loosely-knit confederation of provinces. It has been necessary to give economic cohesion to five vast geographic regions. The federal government, before the advent of motor transport, gave priority to providing good rail and water transportation. It contributed generously to these enterprises, as well as to a national air service, and they, in turn, have served the nation well.

Roads and streets, in contrast, have been the Cinderella of the piece. Responsibility for the construction and maintenance of roads has shuttled back and forth between the provincial and municipal governments. The federal authority has been reluctant to take the same active part it took in the encouragement of railways and air transport. The provincial governments bear more than 85 per cent of the burden for the construction and upkeep of roads.

The present inadequacy of our roads springs largely from neglected construction and maintenance during wars and depressions. From 1929 to 1945, roads and streets received indifferent treatment from all governments. Consequently, they were entirely unready for the great post-war load they were expected to carry.

In 1952, the latest year for which we have complete figures, there were 512,795 miles of road in Canada. Many of these roads were of low standard, many of them little more than trails. Only 35 per cent of the total was surfaced. There are only 220 miles of the highest type four-lane divided highway in the entire country, which is only a fraction of one per cent of our total road mileage.

There are about 15,000 miles of urban roads and streets. Virtually nothing has been done to build urban expressways. Plans are now being made in some of our major municipalities—the new Metropolitan Commission of Toronto, for instance, has an ambitious plan—but modern urban arteries will be a long time coming.

I do not point to these deficiencies to indicate what has not been done, but to emphasize what has yet to be done. In fact, I can say that a great deal of effort has gone into road building and reconstruction in the years since the end of the war. From 1945 to 1953 all governments

spent \$2,746,000,000 for construction, maintenance and administration of roads. That is more than was spent for this purpose in all the years from Confederation of the provinces in 1867 to the year 1945.

The relative size of our expenditures for roads may be indicated by the fact that all governments in Canada spent \$30 per capita in 1953 for this purpose. A comparative figure for the United States would be \$33.

More than half of these post-war expenditures has gone into construction, resulting in a visible improvement in the road systems of the country. In 1945, for example, 26.6 per cent of roads were surfaced; by 1952 this proportion had risen to 35.4 per cent. The provinces, indeed, are doing about all we could ask of them. One-third of their budgets are now devoted to highways and to financial assistance for urban roads and streets.

Federal financial aid to highways as it operates in the United States is non-existent. The same federal constitutional relationship exists in theory; in actual practice it is very different. Whether it may be attributed to rugged individualism or to simple obduracy, the fact is that federal-provincial relations have not yet become completely harmonious or effective.

THE TRANS-CANADA HIGHWAY

Ottawa has made three excursions into the field of financial aid for highways. The first, in 1920, provided a fund of \$20 million upon which the provinces could draw on a 60-40 basis for approved highway construction. During depression days the federal government extended aid as an unemployment relief measure. Finally, and most important, Ottawa enacted Trans-Canada Highway legislation in 1949 which made \$150 million of federal money available to build the long-dreamed-of Trans-Canada Highway.

It is paradoxical that Canada, which has the largest railway system in the world, builds its own jet aircraft, maintains its own atomic reactor and now plans to build, single-handed if necessary, the St. Lawrence Seaway, still has no all-weather highway linking east and west.

The agreements with the provinces, in which Ottawa shares highway costs dollar for dollar, expire in 1956. The highway will most certainly not be ready by then. It will be some years later before Canadians may enjoy their bright new road from coast to coast.

The Trans-Canada Highway is 4,993 miles from its eastern terminus at St. John's, Newfoundland, on the Atlantic Ocean, to Victoria, British Columbia, on the Pacific.

It is a hard-surfaced, two-lane highway of 24 feet with 10-foot shoulders and other agreed-upon standards. It is considered a good road for present purposes. It is probably the best that could be built at present, but it is certainly no better than it should be.

Mileages in each of the provinces are:

Newfoundland	610
Prince Edward Island	74
Nova Scotia	310
New Brunswick	388
Quebec	413
Ontario	1,412
Manitoba	305
Saskatchewan	414
Alberta	292
British Columbia	692

In addition to mileage being constructed by the provinces there are 83 miles of the highway in Yoho and Banff national parks. This will be built entirely by the federal government.

Quebec has not entered into an agreement with the federal government. The most direct route through this province linking up with the Trans-Canada route in the neighboring provinces is 413 miles.

It will be seen that the longest link in the highway is in the Province of Ontario—1,412 miles. Because of its size, and because of the fact that the northern part of the province has some of the most difficult terrain on the route, it will almost certainly be the last link to be completed. The British Columbia section through the Rocky Mountains for the same reason will also be late in completion.

The general specifications of the highway, as laid down by the federal government's Trans-Canada Highway Division, are as follows:

1. *Right-of-Way*

The minimum width of the right-of-way shall be 100 feet. Where the highway runs through densely populated areas, thus involving heavy expenditures, a minimum initial width of 66 feet will be acceptable.

2. *Pavement*

- (a) The width of pavement shall be a maximum of 24 feet and a minimum of 22 feet.
- (b) The pavement shall be a bituminous-mineral type generally described as a bituminous hot plant-mix with graded aggregate.

- (c) The compacted thickness of the bituminous-mineral pavement shall be three inches.
- (d) Where it is desirable to lay concrete pavement, the thickness and type customarily used by the provinces will be acceptable.

3. *Shoulders*

The width of the shoulders on each side of the pavement shall be 10 feet, where it is economically possible to construct this width. Lesser widths will be acceptable to a minimum of five feet where terrain and/or economy makes this necessary.

4. *Obstructions*

The minimum distance between the edge of the pavement and any obstruction on the shoulders shall be one foot less than the width of the shoulders.

5. *Stone Base Course, Sub Base, Elevation of Water Table Level*

The construction of the stone base course, the sub base and the drainage system controlling the elevation of the water table level shall be constructed in such a manner that combined they will produce a roadway having a load-bearing capacity for a repeating 18,000-pound axle load.

6. *Curvature*

The curvature of the center line of pavement shall not exceed six degrees, except where terrain does not permit this with reasonable economy. Where possible, it is considered desirable to reduce the maximum curvature to three degrees.

7. *Gradient*

The maximum gradient on the highway shall not exceed six per cent, except in cases where this is not economically feasible, where seven or eight per cent will be acceptable for short distances.

8. *Sight Distances*

Where terrain permits, the minimum horizontal sight distance, and the minimum vertical sight distance, shall be 600 feet. This means that a driver of a vehicle will be able to see an object six inches high on the pavement ahead of him at a distance of 600 feet, when his eyes are four feet six inches above the pavement.

9. *Bridges*

- (a) Loading H20-S16.
- (b) Overhead clearances, for full width between curbs, 14 feet 6 inches.

- (c) For length of bridge of 30 feet or less, the roadway between curbs shall be the aggregate width of pavement and shoulders.
- (d) For length of bridge over 30 feet and up to 100 feet, the minimum roadway between curbs shall be 27 feet and the minimum width of curbs on each side shall be 18 inches, or the deck design shall provide equivalent clearance.
- (e) For length of bridge over 100 feet, the minimum width between curbs shall be 24 feet, and the minimum width of curbs on each side shall be 18 inches, or the deck design shall provide equivalent clearance.

To the end of March this year, 1,483 miles of the Trans-Canada Highway had been approved for grading, of which 84 per cent had been completed.

There were 979 miles of base course and paving approved, of which 82 per cent had been completed.

The construction of 104 bridges had been approved; 83 had been completed.

Progress generally on the highway has been slow, I believe I can say; but construction is speeding up now, and this year there will be considerable activity along the entire length of the road.

When completed, Canada's "Main Street" will be the fulfillment of a century-old dream. Besides being a matter of national pride and a binder for national unity, it will give another boost to economic activity and the development of the country's resources. Although not conceived as a developmental road, it is doubtful whether any road of this size and location could fail to have far-reaching economic effects.

There are few highways in Canada, in fact, that do not. The Alaska Highway, which was built entirely for military reasons, is now opening up new country for mining, exploration and farming. Highways such as the Mackenzie Highway into the Northwest, or the Talbot Highway from Quebec City to the Saguenay district, are giving a tremendous fillip to activity in those areas. The Mackenzie Highway from Grimshaw in Northwestern Alberta to Hay River on Great Slave Lake, a distance of 384 miles, has changed the entire complexion of transportation and development in this area. The highway carries a great variety of supplies, merchandise and mining machinery to Yellowknife, Port Radium and other expanding mining communities in the Territories. Road transport carries out fur pelts, fish and mine products.

The effects that roads such as these will have upon the future of the North can hardly be over-estimated. In the judgment of many economists, Canada's northland could support communities with millions of

population; that is, of course, if they are connected by road and rail with the rest of Canada. It has usually been considered that the maximum population the country could support was 30 million, which is twice our present population. There is every indication now that we shall reach that number and pass it within a quarter of a century.

Road transportation will expand accordingly. Road building will be an ever-increasing burden on governments and taxpayers. Our need for new and better roads and streets is certainly not going to decrease; quite the reverse.

A speaker at your school here last year pertinently remarked that there was nothing wrong with roads that a few billion dollars wouldn't cure. More dollars could cure many, but not all, of our difficulties.

Although he will not always admit it, the highway user in Canada has generally received good value for his highway tax. There are exceptions to this rule, of course. Indeed, there are taxpayers in many parts of the country who receive very poor value for their taxes. However, over a period of years the provinces and municipalities have ploughed into roads considerably more than they have received from gasoline taxes and registration fees. Diversion of highway taxes has not been a problem with us.

The financial problem today is not only whether the money will be forthcoming, but what proportion of the bill should be paid by the vehicle user and what proportion should come from general revenue.

We in the Canadian Good Roads Association have approached this problem and we know that many words will be spoken and many written before we reach an equitable solution for the distribution of the burden among all classes of taxpayers.

There is no dearth of views on how roads and streets should be financed. We have, for example, a minority group that advocates abandoning our present pay-as-you-go policy in favor of extensive funding of road expenditures. We have a vocal group that demands increased federal financial aid. Another wants toll roads. Another contends that we are subsidizing inter-city highways and rural roads at the expense of the urban driver who pays the greatest proportion of the user taxes.

All these views have substantial support and will be vigorously sponsored—all with sound logic. We have much investigation to do before we can find even partial answers to these questions.

THE CANADIAN GOOD ROADS ASSOCIATION

The Canadian Good Roads Association is a non-political, non-profit alliance of governments, industry, users and taxpayers. It is the Canadian equivalent of the American Association of State Highway Officials,

the National Highway Users Conference with its Project Adequate Roads, and the American Road Builders' Association, all rolled into one. Every major highway interest is represented in CGRA. It is the only national body devoted entirely to road improvement.

It has been active since 1914 and it has been in the thick of the fight for better roads. It has been the motivating force in much beneficial highway legislation. From its inception its members have clamored for a transcontinental highway.

Four years ago the Association was completely overhauled. Its constitution was rewritten to give business concerns wider participation in its affairs. With 400 new industrial members, the Association has greatly expanded its activities.

CGRA is, to quote from its charter, "dedicated to the development and improvement of the nation's road systems, through public education and research, in order to make highway travel and transportation more efficient, safer and more economical."

In pursuit of public understanding and support for roads, we carry on a continuing program of public education. The information we issue is aimed at specialized publics, such as the legislator and the engineer, and it is also directed at the broad mass of the public. The daily and periodical press co-operate handsomely; radio, television, movies and all the other mass communication media help us tell the story of better roads.

We have co-operating with us an advisory committee on public information, appointed and sponsored by industry. This committee is conducting, with considerable success, a publicity and advertising program similar to that of PAR in the United States. We call it NOW, which stands for our slogan, "Nation On Wheels." This Canadian PAR program is now rolling and it will be an important contribution to a better public understanding of the road problem.

The meetings of the Association since 1914 have proved a valuable forum for the exchange of views and news of interest to road builders, legislators and highway users. We have held annual conferences and special interim conferences on the engineering and economics of roads. We are planning to establish standing committees of the Association much in the same pattern as those of the Highway Research Board.

We have maintained a close watch on the development of highway research in this country. We have had a committee of engineers observing the Idaho bituminous tests. This committee will assess the results in terms of Canadian conditions when the Highway Research Board makes its report available.

Some three years ago the Association appointed a committee to investigate the status of highway research in Canada. This committee found that the nation was badly served in this respect and recommended the establishment of a Highway Research Institute patterned after the Highway Research Board.

We are moving toward that ideal slowly. In the meantime, the Association is doing what it can to promote and stimulate highway research in Canada.

We are affiliated with the International Road Federation and have, through the generosity of the Federation, been able to send a young Canadian engineer to undertake post-graduate studies at the Yale Traffic School. This year we shall award another IRF scholarship to a Canadian engineer for study in the United States.

These are a few items in the catalog of our achievements, plans and aspirations. Perhaps our final aspiration would be that one day we shall be able to conduct at some Canadian university a road school like this Purdue meeting. It is the hope of many of our members that we one day shall have a system of highways comparable to yours. We are a long way from the realization of such aspirations.

There is much going on in Canada, but there is also a great deal to be done, particularly in building a modern, durable system of roads and streets.