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Our Highways and Our Traffic

WE HAVE COME TO ACCEPT road traffic as a normal condition of our way of life, but we keep running into totally unexpected experiences with it every new year.

There are millions of complicated vehicles proceeding in all directions under the impulse of up to three hundred horsepower. They can travel at a hundred miles an hour, but are lucky if they average forty. They run on roads that are never adequate to accommodate them but which cost as much as waging a war.

The car itself is a blessing, not an evil. It is among the most valuable tools of living that man has invented. It has proven itself an adaptable and efficient servant in the movement of goods and people. The highways on which the cars run are not unproductive. They have immensely increased the total stock of land in active use by bringing it within reach of people.

Submissions to the Royal Commission on Canada's Economic Prospects estimated that by 1975 three out of every four Canadians will live in a city, that every second Canadian will drive a motor car, and that seventy per cent of all travel will be on city streets. Even today, with six million motor vehicles registered in Canada, and a ratio of 4.1 persons per car, practically the only persons who walk any distance regularly are those who seek exercise.

But, as Hon. Dr. F. W. Rowe said in his presidential review of the work of the Canadian Good Roads Association at the jubilee convention: "We may well have reached the point where the benevolence of the automobile is being nullified by its malevolence."

Canada's highways

The story of the development of roads in Canada is told in detail in a book published in 1954 by the Department of Citizenship and Immigration, called *Our Transportation Services*.

The first graded road in Canada was built in 1606 under the direction of Champlain. It was a military road, ten or twelve miles long, through Annapolis County in Nova Scotia. The first road in New France was built by De Courcelles in 1665 from Chambly to Montreal. By the summer of 1735 a carriage could be driven between Montreal and Quebec in four and a half days.

An Act of the first Parliament of Upper Canada in 1793 placed all roads in what is now Ontario under the supervision of overseers who were called pathmasters. The Act also required everyone to work from three to twelve days on the roads using his own tools. The first government appropriation for roads in the province was made in 1804, amounting to £1,000.

There was a revolutionary change in road building in 1835, when the first plank road in North America was built east of Toronto. Two years later the highway from Kingston to Napanee was macadamized.

The Red River cart, a small low conveyance with solid wheels sawed from the ends of trees whose diameter was about three feet, carried the road problem into the prairies. Highway building reached the Pacific when gold was discovered in the Cariboo in 1860, and the Cariboo Road, the "Great North Road", was constructed under supervision of the Royal Engineers.

It is true that up until the beginning of the nineteenth century the speed of travel was no better than that of the ancients, a horse pace. But when improvements started, they came fast. Labert St. Clair points out in his book *Transportation* that every major improvement existing today except the airplane was perfected during the life of Queen Victoria, from 1819 to 1901, and she missed seeing the airplane by only two years.

Then came the automobile

The first complete and workable gasoline-propelled car was made by Karl Benz of Germany, and display of a Benz car at the Chicago World's Fair in 1893 was responsible for the start of the automobile manufacturing business in the United States.

By 1907 there were 2,131 motor vehicles registered in six provinces of Canada: Nova Scotia 63; Quebec 254; Ontario 1,530; Saskatchewan 54; Alberta 55, and

British Columbia 175. The other provinces had none registered, and Prince Edward Island had prohibited them altogether.

Ontario was the first province to take its highway responsibilities seriously. It passed the Highway Improvement Act in 1901, providing a subsidy of a million dollars a year. Roadway construction has never caught up with the demand. The first modern highway of its kind in Canada, the Queen Elizabeth Highway from Toronto to Hamilton and Niagara Falls, was opened by the Queen in 1939, the year in which Germany had completed 1,900 miles of superhighway, with its twin three-lane strips separated by a hedged and grassed parkway 16 feet wide.

Writhing across Canada, according to the Dominion Bureau of Statistics, are 467,100 miles of roads and streets. They are of every known method of construction, of varying widths, and of many quality standards. The pattern has developed from local needs, handicapped by lack of interest, lack of knowledge, lack of funds, and lack of unity of understanding between the authorities whose areas adjoin. Piecemeal development froze the old pattern of cattle trails and streets.

Today, there are about six million vehicles on these painfully inadequate roads and streets. Farms alone, in the vicinity of which the poorest roads are found, have 360,000 passenger cars and 302,000 trucks.

Canada is the only country with a large car population that has no federal highway authority to plan highways, give advice on standards, and correlate the provincial highway building activities. Indeed, within the provinces responsibility is divided among cities and other municipalities and counties. These small units find the burden heavy, even with provincial assistance, and the problem of co-ordinating their city-to-city or regional exigencies with the all-Canada view too much for them.

In 1961 the expenditures by all levels of government on highways and urban streets amounted to $989 million, a per capita outlay of $54. In the same year the revenue from motor vehicle registrations, motor fuel taxes, and other related charges was $624,291,100.

Many people are saying that a revamping is needed of highway financing as part of the general revision of our highway outlook. The individual vehicle owner is paying by way of license plates, gasoline taxes, drivers' licenses, insurance, and tolls on certain roads and bridges. Through municipal taxes he pays his share of the police force needed to keep transportation going, the construction and operating cost of signalling systems and the paved streets on which the automobiles move and park.

Can these taxes pay for the right kind of highways and streets? Can individual provinces and municipalities, with their great differences in natural and developed wealth, maintain equally the types and qualities of highways needed?

Pay-as-you-go highways may help to solve the problem of rapid transit for through or long-haul traffic, but most of Canada's traffic is congested around cities.

R. A. Draper, assistant managing director of the Canadian Good Roads Association, points out that for the first time in its history Ontario spent more in 1963 on urban than on rural roads.

City traffic

Whatever highway design is decided upon must be interlocked with the street programme in the big cities. As experience has shown in Toronto and Montreal, highways near cities become merely high speed extensions of city streets, and are used by thousands of commuters for a purpose nobody intended. *Imperial Oil Review* commented dryly: "When the Russian moon rocket circled its target one morning, stalled commuters were backed up as usual for half a mile at the intersection of highways 401 and 11 outside Toronto. It was painfully evident that while the world was well into the Space Age, this six-year-old section of highway 401 at least had never caught up with the Automobile Age."

Some students of the situation, believing that "traffic" has nothing to do with congestion but means the free movement of people and goods, maintain that any attempt to solve the urban problem by the private car alone is likely to be self-defeating.

Private cars and public transit systems are not competitive but complementary. The major role of public vehicles like buses, trains and the underground trains, is to handle commuter trips to and from downtown business districts along a few main travel corridors. When the city of Washington looked into the matter in 1960 the official report said: "Any attempt to meet transport needs by highways and private automobiles alone will wreck the city — it will demolish residential neighbourhoods, violate parks and playgrounds, desecrate the monumental parts of the nation's capital, and remove much valuable property from the tax rolls."

It has been pointed out that a bus route, subway system or commuter train service can carry as many passengers per day on its right of way as a ten-, twenty- or thirty-lane boulevard. This theory takes for granted that provision of convenient, speedy and competitively-priced public transportation will remove motorists from the roads. It is well known that when emergencies arise, such as severe weather conditions or motor trouble, or when parking fees rise too high, many drivers turn gratefully to mass transport.

Meanwhile, the war-time question "Is this trip necessary?" becomes for city motorists "Is this trip worth the travel headache it is going to give me?"

The core of a city attracts magnetically with its jobs and its stores. At the time of the latest census, seventy per cent of all Canadians were living in villages, towns and cities with more than 1,000 population. The Gordon Commission predicted that by 1980 there may be eighty per cent of our people living in urban centres.

This problem of traffic in cities has been with mankind for a long time. Hadrian, who was Roman emperor from 117 to 138, boasted "I reduced the insolent crowd of carriages which cumber our streets, for this luxury of speed destroys its own aim; a pedestrian makes more headway than a hundred conveyances jammed end to end along the twists and turns of the Sacred Way."

Long before horseless carriages arrived on the scene, streets in many of our cities were nightmares of traffic confusion. The cause of today's traffic jams is not the automobile but our failure over centuries to provide adequate street and highway facilities to keep up with the developing means of transportation. Today, we are face-to-face with the realization of a force that is hostile to the flourishing of cities as they are presently laid out. Victor Gruen said pungently in the Summer 1964 issue of *Horizon:* "If we continue full speed ahead on the dead-end road of overmotorization we will lose our cities after killing their hearts."

Saving our cities

The first principle of a modern plan for traffic is to separate the long distance or through traffic from local traffic. The American Automobile Association has said that from one-half to three-quarters of the automobiles in the downtown area have destinations elsewhere and are simply passing through because no convenient alternate route exists. It is short-sighted of business firms to insist upon having through arteries pass their doors. Through traffic discourages local and nearby people from driving downtown to shop.

There needs to be enlargement of the capacity of the city arteries themselves. Main streets should accommodate four streams of traffic excluding curbside parking, with as few intersections as possible. Residential streets should be designed for the slow traffic of vehicles approaching buildings on them. They should be designed to discourage through traffic and should never be used, as is now commonplace in the panic to relieve immediate congestion, as short cuts from artery to artery.

What would be the effect of a correlated system of urban freeways and streets? Properly planned, it could make the urban environment more attractive, strengthen the downtown centre, widen the range of employment opportunities for urban residents, assist in stabilizing and guiding land-use patterns, and improve regional accessibility for the movement of people and goods in both peak and off-peak travel hours.

Such planning, looking far ahead and not merely to next year's tourist traffic, seems to be the only way out of the traffic jam. It will no longer serve to apply the Emperor Hadrian's cure: to reduce "the insolent crowd of carriages." As a speaker on a TV programme said: "All efforts to separate machines from man are doomed to failure, because deep in human nature there is the irresistible desire to drive a car, and to drive it right to the door of the building for which he aims."

Many schemes are being tried to accommodate the driver who can't quite make it to the door, but can get within easy walking distance of it. Large parking areas are needed in business sections to eliminate all curbside parking, even if the heart of the city comes to present an aerial view similar to that of a bombed-out European city after the Second World War.

This can be accomplished in part by taking over dilapidated buildings of no historic or aesthetic value and razing them. Some cities are establishing parking places on the outskirts of the business section and running buses from there to downtown. Several cities on this continent have constructed huge underground parking garages, with public parks on the roofs. Others require that all new downtown buildings include parking space in basements. The traffic-stopping practice of daytime truck deliveries has been forbidden by some planners, while others have provided conveniently-placed spaces for taxis and have forbidden cruising. Newly developed sectors might be required to provide alleys for delivery of goods and for the collection of garbage.

Traffic control

Automated highways and automated automobiles are on the drawing-boards. A Cape Town man, Stanley W. Deane, has invented an apparatus which, when set over a stretch of road, automatically reduces the gasoline flow of every car so as to cut the car's speed to that required, say twenty miles per hour. But it is much too early to predict that motorists will soon switch to automatic controls upon entering certain freeways. Traffic must still be controlled by signs and signals, and by the men at the wheels of cars and trucks.

Much of our national travel time is spent in negotiating a myriad of traffic lights, reading hundreds of traffic-control signs, and watching alertly for often obscure direction signs. Every province, city and county has its idiosyncrasies.

It is becoming generally recognized that there is no room for decoration or irrelevant information on road signs. First of all the driver must notice the sign, then he has to read it, then he has to act on it. If, while travelling at the rate of sixty miles an hour he takes his eyes off the road for just three-tenths of a second to learn that the population of the village he is approaching is 1,255, he has covered nearly thirty feet of highway without seeing it.

The Committee on Uniform Traffic Control Devices for Canada set forth the purpose succinctly: "The main purpose of highway traffic signs is to aid in the safe and orderly movement of traffic." Warning signs are needed to alert drivers to hazardous conditions either on or adjacent to the road. Guide signs are primarily to direct through traffic. Information signs tell about special regulations which apply only at specific places or at specific times. Pedestrian signs are for the protection of people on foot.

Because of the increasing range of traffic circulation it is of great importance that there be national standardization of these signs. Representatives of all the provinces and eleven major cities approved a manual in 1959 designed to standardize traffic signals and signs and pavement markings to make them the same all over Canada. The project was sponsored jointly by the Canadian Good Roads Association, the champion of good roads in Canada for the past fifty years, and the Canadian Section of the Institute of Traffic Engineers.

The manual, which has more than three hundred illustrations of signs and symbols, recognises that Quebec, because of its bilingual character, has special problems. That province has found it of considerable advantage to adapt international signs which speak mostly through pictures, a universal language.

Pavement and curb markings suffer under the disadvantage of being hidden by snow, but when they are visible they are of help in guiding traffic and preventing accidents. Line markings to delineate the pavement edge, or, in instances where the shoulder is paved, to separate the shoulder from the travelled lane, have been found of value. One advantage is that when travelling at night the motorist tends to keep over to the right, thus avoiding the danger of sideswipe collisions. In Ohio, the placing of edgelines on test sections of two-lane rural roads reduced accidents by nineteen per cent and deaths by thirty-seven per cent; in Kansas, accidents were reduced twenty per cent and fatalities fifty-nine per cent.

Safety

Life cannot be freed from all danger. There would be some highway deaths even if everybody obeyed the law, observed the warning signs, and drove carefully. "But," said the *Montreal Star* in a survey a few years ago, "—this is the terrifying thing about the ten-month record now published — in 15,998 reported accidents out of 19,946 a traffic violation of some kind was a contributory cause."

The solution is education of drivers to the rules of sane and safe driving. They cannot depend upon the car, with all its built-in safety devices. Someone said sagely: "There were just as many careless drivers forty years ago, but the horse had more sense."

Few drivers pause to think how casual is their education in driving a car compared with the requirements in some other countries. To pass the Soviet driving test you have to be approved by a panel of physicians, including an eye specialist, a cardiologist, and one who tests reflexes. You have to work out traffic problems with model cars. You have to prove that you can take apart and mount an engine. All of this is in addition to showing that you can start and stop the engine, back into an alley, park without hitting cars fore and aft, and that you have read the local by-laws.

Canada is paying an annual toll of $300 million in damage, 3,000 deaths, and more than 60,000 injured because drivers out-drive their eyes, take their eyes off the road, fail to keep their cars in fit condition, do not pay attention to safety signs, drive on rough roads as if they were on pavement, keep up a fast pace on newly-wet highways, stop suddenly, cross railway lines bumper to bumper, turn without warning, neglect thinking ahead so as to be prepared, and to prepare others, for a change of position or direction.

There are, roughly, five approaches to the problem of reducing highway deaths: improve the highways, educate adults, educate juveniles, apply the law, improve the cars. Many organizations are attacking on all these fronts.

There is also the pedestrian to be thought of, although it might not be believed by anyone reading the planning report for the rebuilding of downtown Los Angeles: "The pedestrian remains as the largest single obstacle to free traffic movement."

Some things can be corrected when pampering of the violator, whether motorist or pedestrian, ceases. If signals and regulations are to be useful they must be strictly observed, but that the law is deliberately and wantonly disobeyed is apparent to the most casual observer.

The future

The state of modern traffic, and the certainty that it will expand, obviously call for larger, more forward-looking study on all levels of government. Painstaking research, imaginative thought, and strategic planning are required, and these must be accompanied by efficiently-directed hard work. The temptation to settle for second-best or temporary relief measures is strong, but should be restricted.

Our highways are not merely driveways for vacations, but an economic force of great importance. In many areas of Canada, economic progress depends on adequate roads. Trucking is big business: it has stimulated trade, given quick and expeditious service to suburban areas, assisted in the decentralization of industry, and contributed to the building up of attractive small communities.

For as far as we can see with certainty into the future we have a society that is based on the wheel. A city roads commissioner told a Toronto audience last year his vision of people travelling in rocket containers the size of telephone booths, dialling their destination and relaxing while the controlling computer took over direction and speed. But we must live through the intervening years by making sane and civilized use of motor vehicles.

There is a feeling of urgency about starting at once to make the best of our remaining time on wheels. If we wait until we see the flames instead of accepting the testimony of the smoke, what will the loss be?

People sometimes are heard to say that there are no great causes left. But here is a great cause waiting for its champions.

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