LOOKING AT THE WORLD THROUGH A WINDSHIELD: 
A historical geography of the trucking industry in British Columbia.

by

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ABSTRACT

The trucking industry has been an extremely important part of the process of economic growth and cultural integration in British Columbia. The specific trajectories taken by both the provincial economy and the trucking industry are entwined, each shaping the other. The story of trucking in British Columbia is a story of constant change. Forced to respond to changing political and economic conditions, the industry has taken at least three different configurations. The state of the roads, the trucks and the industry form the three main axes of inquiry.

This thesis explores the history of the industry in specific detail in order to understand the constraints the provincial economy, culture and landscape has brought to the creation of a viable trucking industry. It also examines the ways the industry has, in turn, affected the economy and culture of British Columbia.
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Looking at the world through a windshield gives one a unique perspective on things. It is a specific knowledge only obtained by doing it. I would not know this if I had not spent so much time behind the wheel. Grateful thanks must first go to my parents who tolerated my wayward refusal to go to college and instead, go trucking. "Well at least he's working...."

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As the sun sets each evening in Vancouver, the highways that lead out of the city throb with the sounds of a vast fleet of diesel-engined trucks hauling the products of the city and the world out to the hinterlands of British Columbia. A gleaming wave of trucks washes out of the city, leaving behind it a trail of goods in all the way-points along the route. These goods are the materials out of which the provincial economy is built.

Increasingly, hinterland residents enjoy a lifestyle of consumption that is equivalent to that enjoyed by residents at the urban centre of the province. Intra-provincial haulage dominates the activities of B.C.’s trucking fleet. Eighty seven percent of all B.C.-based for-hire truck transport in 1987 was engaged hauling freight within the province (Transmode Consultants 1990, 37). In the province, over 10,500 trucks employed by over 220 firms hauled similar percentages of freight in 1991 (StatsCan 1992, 7). With the exception of coal, this great fleet of trucks hauls the majority of commodities that British Columbians consume and produce. Within the province, truck transport links local region with local region and connects all of them to the financial, distributive, and economic centre of the province: Vancouver. Trucks also link the provincial economy with its largest trading partner -- the United States -- and, through ports, with the rest of the world.

This nightly pulse of trucks is made up of a bewildering variety of equipment types: straight vans, refrigerated vans, flat decks, A-trains, B-trains, liquid tankers, dry tankers, auto transports, chip trucks, and many other specialized units. They haul an equally overwhelming array of goods
including foodstuffs, dry goods, hardware, fuel, building products, chemicals, and household goods to customers ranging from logging companies to national and international chain retailers.

Although each individual truck and driver making their way through the night moves through the landscape in personal isolation, each is part of a complex division of labour, a system of specialized functions all organized within mutually dependent networks of transport which include pick-up, line haul and delivery. The isolation of the driver on the highway masks his or her participation in an integrated effort to eradicate distance and bring the bounties of 'civilization' to places formerly beyond its reach. The driver alone at his wheel, the warehousemen, city drivers, managers and clerical workers are all part of a system which helps overcome the separation of region from region, peripheries from core, and producer from market.

Truck transport is used to overcome natural limits, such as the scarcity of arable land, by allowing a region to consume food produced thousands of miles away. Freeing the provincial economy to concentrate on areas of natural advantage, trucking has sustained the province's economic growth in the last half century by enabling and enhancing specialization in resource extraction, exporting raw or semi-processed materials and importing goods for consumption. Indeed, it is difficult to imagine the type of growth which has characterized the provincial economy in the last 50 years without truck transport. Other modes of transport are unable to approach trucking's ubiquity and economy.

Rail and marine transport networks were limited by expense and topography to a few natural corridors -- the Fraser Canyon, the Cariboo and the North coast. This left the majority of the province without access to an integrated transportation system. The advantage of road transport lies in
the relative ease of building highways to all parts of the province. The highway network, and the transport systems which run on it, make up an extensive transportation system that includes all places and connects them to all other places with a relatively efficient means of transport. By expeditiously and economically carrying the products of local enterprises to trans-shipment points, or to their eventual destination, truck transport has allowed more regions to participate and compete within the wider economies of the province and the world.

The effect of an extensive system is basically integrative. A perimeter incorporating all of Vancouver Island, and the Interior north to Prince George and east to the West Kootenays, marks the limits of overnight service. Within this area, a network of trucking services allows residents of hinterland regions to participate in the same economy of goods and ideas as do residents of the urban centre of the province. In this way, these places can be seen as being ‘integrated’ into a provincial economy and culture. How the industry is structured affects when and where places in the province become integrated into the larger provincial economy and culture. Access to extra-regional resources is still dependent upon the ease or difficulty of shipping goods to and from that region.

How did we come to depend upon this intricate network of trucks and trailers? This expeditious, reliable and economical system upon which we depend for our livelihood and lifestyles is so commonplace now that we take it for granted. This thesis will look at the formation and development of the trucking industry in British Columbia, examining the internal dynamics of the industry itself, from its inception to the current period. Additionally, it will attempt to illustrate the manner in which the trucking industry was shaped
by various factors in British Columbia and how, in turn, it helped shape the way the provincial economy and culture grew.

Transportation means highways, and that means you can jump in your car any place in British Columbia and travel on a major route to anywhere in the province. Communication: nobody likes to be isolated. Once you put in a highway the immediate result is electricity and telephone. If you have utilities it does away with outhouses and gives you civilization -- the iron, the washing machine, the flush toilet, the bathtub; it gives you the complete home.... That's why, when I set out the policy, which the premier neither dictated nor stopped, it really developed the province. Before we were in power the statement was common that the province ended at the Pattullo Bridge. (Rothenburger 1991, 113)

These are the words of former provincial Minister of Highways, Phil Gagliardi (1952-1972). As will be recounted later, his tenure as Minister of Highways was enormously influential in the creation of a road network that supported universal truck transport. His official motivations are obvious from the statement itself: Progress, Civilization, Integration, and "flush toilet[s]". This drive to bring the lifestyles and consumption patterns of the hinterlands of the province into a type of equality with the urban centres lies at the heart of a political project that encouraged and sustained the creation of a closely integrated network of trucking services, bringing the fruits of the North American consumer economy and culture to the smallest and remotest outposts in the province. This 'civilizing' project provides a backdrop against which the growth and maturation of the trucking industry has been projected.

i: 'Civilization' and time-space convergence

David Harvey argues that societies fundamentally change as their perception of time and space changes (1989, 78). Perceptions of time and
space are, among other things, dependent upon the technological means employed to reduce the friction of distance. Thus, the process of modernization is a process in which the compression of time and space is demonstrated by the ability of local agents to reach out in commerce (intellectually, socially and economically) with individuals and groups further and further removed in distance (Harvey 1989).

Jannelle (1966, 13) explains this phenomenon in terms of a decrease in the 'friction of distance' whereby travel or communications beyond the local area are dependant upon the speed of the medium of communication or movement. As the speed increases, so the interaction between societies or places increases. This phenomenon is called 'time-space compression'. And, as the speed increases, constraints to certain activities are eliminated. Thus there are material consequences which accompany time-space compression.

Both Harvey and Jannelle discuss this phenomenon in terms of cultural and social constructs. But economic issues lie beneath the cultural critique. The objective qualities of time and space cannot be viewed outside of material processes. Time-space convergence is, to a large extent, dependant upon the technological means employed in performing acts of transport and communication, and one of the criteria for success in this process is the reliability and affordability of the technological innovation. Only when a material technology is ubiquitous and relatively affordable can it have the fundamental effects discussed here. The story of the trucking industry is one of struggle against constraints to produce a ubiquitous service which ties all regions in the province together.

As technologies bring people into intimate contact with more distant places through contact with their goods and ideas, so the reality of these
places and of their cultures impinge more and more upon local places and cultures, increasingly integrating the two. When the technological means of communication and travel become sufficiently efficient, these distant peoples and places become a real part of local life. With the convergence of time and space comes a change in the traditional role of distance in the lives of individuals and societies.

A corollary to time-space convergence is the homogenization of culture. As urban centres reach out further into the hinterlands with electronic media and with quicker and quicker transportation links, the culture of these peripheral areas becomes increasingly similar to that of the urban centres. The decline of individual regional cultures and values, especially in rural areas, is a common Canadian concern. Newspapers and magazines feature editorials deploring the loss of the 'old' rural virtues and places. Local historians rush in to 'preserve' a disappearing heritage. The increasing presence of the urban in the rural has been dramatic and is seemingly irreversible (Thrift 1995, 125). Additionally, there is a geography of the spread of modern culture over space and time. The material measures of time-space convergence have reached different areas in specific temporal and spatial patterns.

A better understanding of the history and structure of road transportation allows important insights into this process of integration in British Columbia. The specific means employed to overcome the friction of distance, and the time-scale over which it has appeared have specific implications for residents of these formerly poorly connected areas. This study focuses on the specifics of these means. It does not explore the implications directly, concentrating instead upon the trucking industry itself.
The narrative should, however, be seen against a backdrop of integration, time-space compression, and change in the lives of provincial residents.

**ii: Sources and method**

Very little work has been done on the trucking industry in British Columbia. What exists is usually anecdotal (Andy Craig's *Trucking In British Columbia*, Raincoast Chronicles Five, *The Motor Carrier* are examples), colourful, and imbued with the mystique of the romantic truck driver. There is also a plethora of technical documents examining the Canadian industry. These tend to take a micro-economic approach using cost-analysis, input-output models that shed little light on the structure of the industry or on its cumulative impacts on the province. Other sources of information on the trucking industry include trade publications such as the organs of the British Columbia Trucking Association (BCTA), and general industry sector magazines (*Truck World* [TW], *Today's Trucking* [TT], *Fleet News*). These tend to take either a laudatory or alarmist tone in order to push issues of importance to trucking firms. The Motor Carrier Commission publishes annual reports and from these can be obtained statistics about traffic volumes, commercial vehicle numbers and records of published tariffs and licence authorities. Information about the road network can be compiled from the Annual Reports of the Ministry of Highways. Two important sources of information are Statistics Canada and the federal Department of Transport. StatsCan has only recently begun conducting industry studies but these offer a wealth of data about the industry since 1976. Likewise, a study commissioned by the DOT in 1987 provides a useful level of statistical detail and analysis of national and provincial trucking trends in the previous decade. Much more is written about the American trucking
industry and some of this material can be extrapolated to inform a study of the industry in British Columbia.

Although there is common admission of the value of the trucking industry in supporting the growth of the consumer economy and more recently, the new phenomena of 'flexible' or 'just-in-time production', actual theoretical work on trucking is notable by its scarcity. As a result, this project has grown in a jumbled and sporadic fashion, much like the industry itself. The story of the trucking industry has been assembled from a variety of disparate sources: empirical details have been collected and observed until trends began to resolve out of the jumble of details.

This is appropriate because the trucking industry in British Columbia does not exhibit a singular or linear trajectory from inception to maturity, nor has it stayed in one particular formation for long. Growth has never been assured nor reliably profitable. Trucking in British Columbia has never been stable in spite of its ubiquity or importance, in part because it is subject to so many external influences. Trucking is a derived-demand service and is dependent upon the goods produced and consumed within the provincial economy for its revenue and its raison d'être. It thus depends upon the health of the provincial economy. Trucking is also dependent upon the provision of provincial road infrastructure and the presence, lack, or quality of the road network has profound implications for the structure of the industry. It is subject to governmental regulation and over-regulation. And even in a regulated market the industry has always been subject to extreme competitive pressures, from within and from without. Thus, wider social, economic and political phenomena militate against a stable industry.

Against the constraints of environment, economics, and regulation, the story of the trucking industry has been one of struggle. A constant
stream of new presences in the market: new services, new features, new innovations in equipment, routing or organization, marks the real voice of the industry. To a shipper, there is a never-ending torrent of upstart service providers, each clamoring to grab a place in the discursive space of the trucking industry, to become a presence, to grab market share, and to dominate their sector of the industry.

In rendering this material intelligible, I have inevitably removed some of the complexity. By charting the historical trajectories of the various services, I have removed some of the contingency and uncertainty from the picture. Nevertheless, the one salient feature of the trucking industry in B.C. has been its heterogeneity. It is spatially heterogeneous: for example, trucking in Vancouver and trucking in Tumbler Ridge take very different forms. The industry has been temporally heterogeneous as well, exhibiting different patterns of development at different times. For example, truck transport was established in the Lower Mainland long before it became common in the hinterlands.

The industry also varies by commodity and by the technologies employed. The experience of the workers in the industry is, as a result, also heterogeneous: long-haul truckers live in a different world and their job conditions differ markedly from those of a trucker who works in the forest industry and goes home to bed every night.

And yet from all these contingencies, trends do emerge. The contribution of trucking to the provincial economy can be illustrated. Certain structures have grown within the industry. Temporally specific, they nevertheless became major organizing principles behind the way trucking activity was manifested in the provincial economy. These phenomena were structural constituents of the experiences of the shippers
and receivers, the drivers and warehousemen, the entrepreneurs and the
union workers, and these had specific implications for the provincial
economy, the culture within which British Columbians live, and the lives of
those workers.

iii: definitions

In order to render the industry intelligible, an overall model of services
has been created. This structure is illustrated in figure 1. In this
endeavour, the first guide has been the industry itself. The structure is also
influenced by government regulation. Likewise, functional notions of the
organization of production and consumption and economic growth are part
of the picture. Thus the figure presents two ways of constructing a model
of the industry. Throughout the thesis, references to industry sectors, to
the industry in general, and to statistical evidence of these structures are
references to the following definitions.

The trucking industry encompasses a plethora of specialized services.
These range from the For-Hire (or General Freight, or Common Carrier)
sector to the private commercial sector where trucks owned by farmers or
producers haul only their own goods to market. The latter forms the
Private-Trucking sector which currently makes up approximately 52 percent
of the industry in Canada (Transmode 1990, 7). In the earlier days of the
Figure 1. The Structure of the Trucking Industry by Sector
Figure 2. The Structure of the Trucking Industry by Function.
industry this was even more the case. In 1932, only one fifth of the registered commercial vehicles were not private carriers or passenger services. This thesis concentrates upon the other major sector of the industry which -- the For-Hire sector. This is the sector of the industry most people think of when they think of trucking. For-Hire trucking services carry other peoples' goods. Common carriers are obliged to offer their service to any member of the public who wishes to take advantage of it at the published tariffs. This is the sector regulated by the Motor Carrier Act, and the sector studied by Statistics Canada, the various trucking associations and the provincial ministries. The for-hire sector in Canada generated over 8.7 billion dollars in 1989, and contributes even more to the Canadian economy through multiplier effects (Transmode 1990, 24). And, of the for-hire sector, the top ten percent of the firms earn over 80% of the industry’s revenues (StatsCan 1992, 3). Due to the for-hire sector's impact on the general economy and its contribution to the trucking industry itself, this study concentrates predominantly this part of the industry, although certain other elements of the industry have also made important contributions to the provincial economy and these will be examined briefly.

The for-hire sector encompasses an extremely broad range of services, from logging trucks to 'gypsy' line-haul services. The General Freight sector of the for-hire industry is separated into a number of divisions. Common Carriers work for anyone and haul under published tariffs to regular schedules (ie. daily service between two points). They cannot refuse legitimate freight from any customer and so provide a type of public service to all who choose to take advantage of it. In return for the provision of 'universal' service, they have been historically given the
opportunity to expand their service. The extra costs of infrastructure provision are ameliorated by the extensiveness of the service and the opportunity to build large-scale operations with built-in economies of scale.

**Contract Carriers** are another type of General Freight carrier. They haul, under exclusive contract, a customer’s goods for distribution to redistribution points or the ultimate consignee. Contract carriers have much greater freedom in the commodities they can carry because they work as a part of the shipper’s fleet, acting, in effect, as private carriers carrying their own goods to their customers. Contract carriers are more likely to haul truck load freight, either a whole trailer of a single commodity, or a whole trailer of multiple commodities to be delivered to a single consignee.

Within the for-hire industry there are two types of operations: Less-than-truckload (LTL), and Truckload (TL). The LTL operations take shipments smaller than a truckload and consolidate them in line-haul systems which specialize in highway transport. Upon arrival at, or near the destination, the freight is distributed to local trucks which then deliver the goods to the consignee. This type of operation requires extensive terminal facilities throughout its network for the break-bulk operations which must ensue, but can take advantage of a highly refined division of labour to increase efficiencies. This infrastructure network requires much capital and highly refined management procedures to control costs and assure adequate returns. Entry into this sector of the industry is difficult and expensive, with the result that most new entries are the result of the purchase of an existing network and its conversion to the service of the new firm.

Truck Load freight, on the other hand, is usually picked up by the driver who hauls it over the highway and delivers it to the eventual consignee. This is possible because the shipment fills a whole trailer. The
freight does not need to be 'broken down' or otherwise handled again until it is unloaded at the destination. Thus, a TL carrier does not have to invest in infrastructure such as break-bulk warehouses or a whole network of specialized trucks. This makes it easier to start a new business: capital is required only for trucks and to cover initial operating expenses; the asset/revenue ratio is low; and the requirements for support staff such as accounts receivable departments, human resources managers, and warehousemen are much lower than in the LTL sector. Often these firms employ owner-operators (brokers) who supply their own tractor unit. In this way, a company’s capital can be invested in business systems, not rolling stock. In the wake of deregulation of the industry, it is this sector which has been best able to respond to the new conditions and which has seen the greatest growth in the re-structured industry.

Another way to look at the structure of the industry is by functional sectors (figure 2). It can be separated into productive and distributive sectors, each of which hauls different commodities and is structured in different ways.

The productive sector moves goods from production and processing sites in the province toward points of consumption, acting as producer-inputs. These commodities include forest products, agricultural produce, manufactured goods, and ore and concentrate. It also includes the carriage of producer inputs such as bulk chemicals and minerals, bulk liquids such as petroleum or fluid milk, as well as the intermediate transport of semi-processed commodities to sites of further processing such as lumber for re-saw mills, veneer for plywood mills, or wood chips for the manufacture of pulp.
The productive sector often utilizes equipment optimized for single commodity loads, repetitive short range hauls, 24-hour shift work and equipment optimized in terms of capacity and power. The workers in this sector often enjoy union jobs which have strict control of overtime, several shifts keeping the vehicle working around the clock, obviating the necessity for a single driver to work long hours. Because this sector serves large industrial-style harvesting enterprises which are already unionized, the jobs tend to be unionized as well, because many work sites will not allow non-union operators to deliver to them. The jobs are repetitive and machine paced, but the efficiencies achieved tend to support good hourly wages.

The distributive sector of the industry takes goods manufactured in the provincial economy and abroad, and moves them to the point of consumption. Because of the wide range of goods to be distributed, trucks in this sector tend to use equipment that is non-specialized and versatile: usually van-trailers or flat-decks. The distances imply a job where the worker is often away from home overnight and works as much as 16 hours a day. Wages (on the highway) are calculated by the kilometer, and this piece-work manner of calculating wages encourages long days and high-mileage work shifts. Owner-operators dominate, especially in line-haul operations and non-union jobs are the norm in smaller sized firms.

Each sector has unique constraints alongside the common phenomena they both face. The productive sector keeps the industrial machines that process the province's raw materials running at maximum capacity and efficiency. The distributive sector must deliver goods to the point of consumption as efficiently, expeditiously and economically as possible. In general, it can be said that the movements in the distributive sector are inward -- to the provincial economy while those in the productive sector
move outward -- towards external economies. These conditions shape the different sectors in different ways, and have implications for a wider set of productive or distributive activities within the provincial economy.

iv: thesis structure

The thesis is organized into three periods, each of which features a specific constellation of structural and functional phenomena -- that is, of road quality and quantity, of technological efficiencies and innovations, and of successful means of organizing businesses in terms of profitability, responses to wider economic conditions, and responses to government interventions. These have had specific implications for the industry and the economy in which it is situated.

The first period can be characterized by innovation and response to difficulties and limits. These difficulties include poor roads, low profits, difficulties in achieving economies of scale, little government intervention or support, unreliable vehicles and underdeveloped markets. From the constraints faced by early truck operators came the drive to regulate the industry.

The second period coincides with the establishment and consolidation of the regulation of the industry, allowing companies to attempt to rationalize their operations and grow in size and scope. Additionally, during this period, truck technology and the highway network became sufficiently well-developed and extensive enough to support attempts to build Fordist-style, vertically integrated companies covering as much of the province as possible.
The third period can be characterized by a crisis in markets and profitability which resulted in a re-structuring of the industry in the wake of the OPEC fuel crisis and the 'Recession' at the end of the 1980s. While the road network improved only incrementally, huge increases in operating efficiencies in the equipment and new means of organizing the use of capital and the deployment of labour meant, in effect, a new manner of doing business in the trucking industry. This period coincided with the push to deregulate the industry, which is the other salient feature of the period.

The particular ways in which the industry organized its endeavours during these periods had specific consequences for the provincial economy. Constraints on the industry also acted as constraints on provincial activity, and vice versa. A particular benefit to society has been a tendency, over the last thirty years in particular, for shipping rates to fall. Each of the industry's responses to constraints was designed to lower unit operating costs, allow them to compete with other companies by providing a less expensive service, or develop new and necessary services. The net result has been improved service levels, the incorporation of more of the province into the network, and unit prices that have decreased in real terms.

The previously mentioned cautions regarding heterogeneity apply to this periodization, however. Because of the temporally and spatially diverse pattern of development across the province it is difficult and arbitrary to pick specific dates to periodize these phenomena.
Mention should be made of the author's experience in the trucking industry. I received my Class Three license (single trucks up to 24,000 lbs) in 1971 and worked for two years before obtaining my Class One license (semi-trailers and vehicles of any legal weight or length). Through the 1970s I worked for a large number of companies including the highway division of Public Freightways, British Columbia Railway, Esso Petroleum Canada, VC Produce Express (Vancouver-California) and various other general freight companies. During the 1980s I was employed in the courier industry, first as a line haul driver and later as a sales representative and as part of a management team.

I became a Teamster in 1972, although my occupation has taken me to several other unions including the IWA and the Canadian Brotherhood of Railway Transport, and General Workers (CBRTGW). As well, I have managed employees and services, including the implementation of overnight delivery from Vancouver to northern Vancouver Island. In this role, I was able to observe the changes that service innovation can bring to small communities.

I worked during my time at university as a casual driver for Esso Petroleum Canada, and for a company which contracts the haulage of compacted garbage from the Greater Vancouver Regional District to an engineered landfill site in Cache Creek, 200 kilometers away. In the process of doing this, I have driven over 4.5 million miles, much of it in the province of British Columbia.
This is not to claim a naive authority regarding the industry. My knowledge of the industry was, of course, influential in determining where I looked, and thus, what I observed in formulating and organizing this research. Nevertheless, this thesis is constructed out of the various sources of statistical and anecdotal information which can be found in government records, the media and in scholarly studies.
CHAPTER II
INNOVATION AND PROLIFERATION: OVERCOMING LIMITATIONS

i: the roads

In the first five decades as a province, government commitment to roads and road transportation was fitful and weak, constrained by other concerns such as the Great War, and by the relative poverty of the provincial government.

Until the Public Works Act of 1930 established the Department of Highways, government expenditure on roads and bridges was the responsibility of the Department of Public Works (DPW). The DPW was concerned with most provincial infrastructure -- including provincial buildings, and steam and mine inspections -- and roads were just one of its many responsibilities. In 1918, road building and maintenance budgets were very low. For example, a total budget of $1.1 million covered the construction and maintenance of 14,623 miles of provincial roads.

Major highway upgrading projects, such as the 'paving' of the Fraser Canyon and its incorporation into the national highway system as Highway 1, came about as a result of Federal intervention with Federal funding. The passage of An Act to Encourage and Assist the Construction of a Trans-Canada Highway by the Federal Government in the 1920s attempted to rebuild and connect parts of an existing east-west route across the country into a national highway (PUC 1925, Q5). Initially, provinces were responsible for the majority of the building costs. In British Columbia, however, the difficulty of the terrain caused actual costs to be much higher than elsewhere and the provincial government was successful in getting the Federal government to subsidize the costs for the most difficult stretches of
highway building on the Trans-Canada Highway. The major provincial trunk routes were initially created to connect the province to the nation, rather than to integrate regions within the province.

With the creation of the Highways Department, and the passage of cost-sharing federal Transportation Acts, more emphasis was placed upon roads by the provincial government, and the Department of Public Works could lobby more effectively for budgets that supported the creation of good roads.

a: roads and settlement

By 1918, the automobile was well established in British Columbia, with registration reaching over 18,000 (MVB 1921, P7). Unlike many other provinces in Canada, British Columbia did not have an pre-existing, extensive road network when automobiles became common. Two predominant factors in this situation were the relative recentness of the settlement process, and the difficulties of the topography.

When the first concerted efforts to build a settler culture in British Columbia began, the eastern provinces and some of the prairies had already been colonized and settled for a considerable period (Ontario Trucking Assn. [OTA] 1978, 22; Moline 1971, 41). Systems of farm and trunk roads were well established early in their history. In areas where an agricultural economy underpinned the establishment of communities, a system (often a grid) of farm roads led to markets in smaller towns (Moline 1971, 24). The wagon roads functioned as collector systems, focussing the produce of the rural areas into the market towns. These were in turn connected to larger urban centres through transportation networks which utilized a number of
different transportation modes including maritime, railroad and road systems (Bantjes 1992, 119).

Automotive transport initially used roads constructed for horses and wagons. Thus, by 1920, there was a relatively vigorous truck transport industry in Southern Ontario which served both the hinterlands and the urban centers (OTA 1977, 24). Many agricultural communities were located in areas of relatively benign topography and converting the rough wagon roads to accommodate automobile and truck traffic was a relatively simple task compared to the problems faced in British Columbia.

In B.C. two features of the physical environment inhibited the construction of good roads. Rugged topography channelled transportation into a few narrow corridors through which people could travel. Steep valley sides and high mountain passes made building trunk roads difficult and expensive. These transportation channels were already the sites of railroads, which formed the main trunk line connections with markets. The roads that did exist were built to service the railways and due to the narrow valleys, were, for the most part, short.

Secondly, little of the province's land surface is arable and farming was viable only in a few hinterland areas, and then only when connected to distant markets and sources of supply. As a result, most agricultural activity took place around the two urban centres (Vancouver and Victoria), to supply local markets. By 1911, the main areas of agricultural production in the Interior were located "along the historic wagon road to the Cariboo, in nodes along the Dewdney Trail leading to the East Kootenays, and along parts of the main C.P.R. line westward from Revelstoke" (Farley 1979, 78). Settlement and transportation have been linked from the beginning in British Columbia. The mode of transport has affected the location of settlement.
Not only did settlers have to get in to the area they farmed, they had to be able to ship their produce to other markets (Moline 1971, 67).

Before 1925 the only areas with an extensive road network were the Lower Fraser Valley and the southern and eastern coast of Vancouver Island (Forward 1979, 221). Of 17,920 miles of roads and trails in British Columbia which came under the jurisdiction of the province, a total of 160 miles were either Macadam, Bituminous Macadam or Hard Surfaced (DPW 1925, M4). The majority of these were located in or near Vancouver and Victoria. Away from the Fraser Canyon and Dewdney Trail systems, the vast majority of the rest of the roads were officially defined as "dirt trails", encompassing over 10,000 miles of the provincial total.

In the Lower Mainland, the opening of the bridge across the Fraser River between New Westminster and Surrey in 1904 led to an almost instantaneous increase in traffic between Vancouver and the agriculturally rich areas of the upper Fraser Valley (Taylor 1984, 71; Meyer 1966, 32; White & White 1979, 65). With the presence of the national railroads, the BC Electric Railway Company's Interurban rail line to Chilliwack, several ferries across the Fraser River, and the trunk roads, the Lower Mainland had, by 1921, an integrated and complex network of transportation facilities which facilitated development throughout the region.

Likewise, on Southern Vancouver Island, a well developed land transportation network soon appeared (figure 3). The relatively flat plains of the Saanich Peninsula were soon covered by an extensive road and rail network that included the national rail lines plus local rail and public
Figure 3: Historical Development of the Road Network on Vancouver Island

transport networks. Additionally, the Esquimalt and Nanaimo railway (completed in 1886) was joined by a trunk road that led over the Malahat Pass from Victoria to Nanaimo in 1880, to Port Alberni in 1903, and north to Campbell River in 1930 (Forward 1979, 233).

The location of most major towns along the east coast of the Island had allowed them to take early advantage of marine transportation. The relatively flat coastal plain along the east coast of the Island meant that roads were relatively easy and inexpensive to construct. The places where the two transport modes coincided were some of the first towns in the province to become urban centres. Places such as Ladysmith, Cumberland and Nanaimo had impressive stone town halls and well laid-out streets, as well as a healthy and complex commercial and consumer life before the turn of the century. One reason for their early prominence was the conjunction of the two systems of transport.

A look at a map of the province from 1928 (fig 4) illustrates the state of the Interior roads. Apart from the grids of roads near the two urban centres, the main transportation corridors are the Fraser Canyon route, with connections to the north along the Fraser and Thompson Rivers, and parts of the route along the Dewdney Trail, paralleling the southern border of the province into the West Kootenays. Note that there is no Hope-Princeton Highway between those two towns. The routes were of poor quality, with loose gravel surfacing, narrow road beds, and constructed over precipitous drops in the mountain passes. Additionally, travel along the full extent of the corridors often required the use of water transport to connect the segments of road. This took place, for example, along the Fraser River at Quesnel, at Anderson Lake along the Lillooet route, and on Kootenay Lake at Balfour (Taylor 1984, 41).
Figure 4: Road Map of British Columbia, 1928
Source: British Columbia Advertisers Council
Journeys from Vancouver to the Kootenays were difficult, lengthy and hard on vehicles. British Columbia lagged behind Washington State in the construction of modern east-west highways. The Columbia River Highway, a well-graded and specially constructed route, opened in Washington in 1916 (Taylor 1984, 101). The preferability of this route is illustrated by a Vancouver Automobile Club pamphlet of 1921 which recommended that 'auto-tourers' travel to the Kootenays via roads in Washington State as the overland route through British Columbia was still too difficult (Taylor 1984, 126).

b: Constructing the network: early attempts

Road improvement was not a priority of a cash-strapped provincial government in the first part of the century. The annual summary Reports of the Minister of Public Works show the creation in 1925 of 250 miles of "new trails", and 500 miles of new roads, in a province with over 17,000 miles of roads and trails. Of these new roads, 114.38 miles were primary highway, loosely surfaced with gravel. Actual "hard surface" work consisted of 22.42 miles of road in 10 projects, of which eight were located in the Lower Mainland. The total provincial expenditure was $1,440,324.76, of which $67,294.12 was bridge maintenance (DPW 1926, N6). By 1928, 154 miles of road were bituminized, but no new highways were built. The annual budget of $1,934,758.85 included, for the first time, the provision of snow removal services for over 4,000 miles of settler roads and highways (PUC 1929, Q4).
c: roads and traffic

Not many travellers risked the rigors of these highways. The Cariboo Road along the Fraser Canyon was one of two major trunk routes to the Interior. Yet, in 1928 the toll gate at Spuzzum recorded daily average traffic figures of 23 in May, to a high of 81.2 in August, and a low of 15.7 in November.

Table 1

<table>
<thead>
<tr>
<th>month</th>
<th>daily average of vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>23.0</td>
</tr>
<tr>
<td>June</td>
<td>44.4</td>
</tr>
<tr>
<td>July</td>
<td>77.7</td>
</tr>
<tr>
<td>Aug.</td>
<td>81.2</td>
</tr>
<tr>
<td>Sept.</td>
<td>63.7</td>
</tr>
<tr>
<td>Oct.</td>
<td>21.7</td>
</tr>
<tr>
<td>Nov.</td>
<td>5.7</td>
</tr>
<tr>
<td>total traffic</td>
<td>9,071</td>
</tr>
</tbody>
</table>

Tolls Collected,
May 29 to November 10, 1928
(source, PUC 1929, O11)

This section of the Cariboo Road had been reconstructed as part of the Trans-Canada Highway in 1926-27. The actual contracts for construction were let by the provincial government under a federal-provincial cost-sharing scheme in 1925 (PUC 1925, M4). The reconstruction held to engineering standards of a maximum eight percent grade, but the highway remained narrow and gravel-surfaced (figure 5).
Figure 5: Fraser Canyon Highway, 1930.
Source: Denison, 1930
Drops were still precipitous and the road building technology of the day was not able to prevent numerous washouts and slides from inundating the road, closing it for days (PUC 1925, M3). Asphalt paving did not begin until the mid-1930s (DPW 1933, P1).

The mean daily traffic numbers of 1925 (48.8 per day) had increased to 91 vehicles per day in 1932. This figure included a high peak in the summer months (table 2) and the actual figures reflect an enormous seasonal variation from less than one per day in April, to 146 per day in August (DPW 1935, X34).

These numbers are indicative of the primitive state of road technology on what was then the premier highway in the province. Road surfaces were treacherous and rough. Ice and snow made winter travel extremely dangerous, if not impossible. Travel time was still measured in days (Craig 1977 47; Taylor 1984, 74). There were few automobile services such as fueling stations and garages or highway patrols -- the first provincial highway police were commissioned in 1942 (Craig 1977, 89) -- and the intrepid traveler had to be self-reliant in case of breakdown or accident.

Government maintenance budgets were less in 1933 ($1,591,950.04) than in 1925 ($1,934,758.85) as the government suffered a decline in revenues during the Depression (DPW 1934, Q9; PUC 1926, N1). The gravel road surface deteriorated faster than the Department of Public Works could afford to maintain it. Actual numbers of travelers on the Cariboo Road declined from 1932 to 1933, partly as a result of a poorer populace, and partly as a result of a hard winter and low maintenance budgets. The Department of Public Works complained that "the total mileage to be maintained has increased yearly at an average rate of some 360 miles per year since the year 1919, but the average appropriation for maintenance
has not increased in proportion" (DPW 1935, Q1). Technology and budgets were not capable of providing an integrated network of roads in the province.

Table 2.

<table>
<thead>
<tr>
<th>Month</th>
<th>total autos</th>
<th>motor trucks</th>
<th>daily average all vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>238</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>May</td>
<td>1711</td>
<td>138</td>
<td>60</td>
</tr>
<tr>
<td>June</td>
<td>2641</td>
<td>145</td>
<td>93</td>
</tr>
<tr>
<td>July</td>
<td>4368</td>
<td>140</td>
<td>146</td>
</tr>
<tr>
<td>Aug</td>
<td>3830</td>
<td>167</td>
<td>127</td>
</tr>
<tr>
<td>Sept</td>
<td>3093</td>
<td>147</td>
<td>108</td>
</tr>
<tr>
<td>Oct</td>
<td>1933</td>
<td>147</td>
<td>66</td>
</tr>
<tr>
<td>Nov</td>
<td>632</td>
<td>49</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>18446</td>
<td>923</td>
<td>92</td>
</tr>
</tbody>
</table>

Source: DPW 1933, Q10

ii: the trucks

It was not only the poor state of the roads which made truck transport difficult. The trucks themselves were small, underpowered, under-braked and unreliable. The technological standards of the 1920s and 1930s built vehicles which were simple and simply repaired, as reliability was hard to insure. Breakdowns were common, suspension and running parts often breaking due to the punishment from the rough roads (Craig 1977, 42; ATABC 1978, 11)).
The typical 'heavy-duty' truck of the early thirties featured a single dual-wheeled drive axle, a motor of approximately 80 - 100 horsepower, a four-speed transmission, a box (often home-built) of approximately ten to twelve feet length, and a load capacity of 2 or 5 tons (BCTA 1978, 12; Wise 1987, 40). Speeds going up hill were less than ten miles per hour, and due to the poor quality of the brakes, downhill speeds could be little faster. Suspensions were elliptical leaf spring or hard rubber block. These were necessarily harsh due to the need to carry heavy loads under punishing conditions, giving a rough ride and limiting the delicacy of the freight that could be carried, especially on the pot-holed and wash-boarded surfaces of the highways of the time.

Table 3

Public Freight Licences in British Columbia, by Capacity 1932

<table>
<thead>
<tr>
<th>Vehicle Capacity</th>
<th>Number of vehicles licensed</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 2 1/2 ton.</td>
<td>28</td>
</tr>
<tr>
<td>&gt; 1 1/2 ton, &lt; 2 1/2 ton</td>
<td>64</td>
</tr>
<tr>
<td>&lt; 1 1/2 ton</td>
<td>70</td>
</tr>
<tr>
<td>1/4 ton motorcycle</td>
<td>1</td>
</tr>
<tr>
<td>total</td>
<td>163</td>
</tr>
</tbody>
</table>

Source: DPW 1933, P27

The small capacity of the trucks and the small size of the commercial fleet give an idea of the relatively minor amounts of freight that could be
moved by truck in 1933 (Table 3). By 1937, there were 1001 trucks in the public and limited freight fleet but they were a fraction of the almost 6000-strong commercial fleet. The Motor Carrier Commission estimates that the rest were mostly owned by farmers (PUC 1938, X33). Half of all truck registrations are what we would now consider to be large pick up trucks, whilst the other half were of the size of the large vans used today by couriers, laundries and distributors for inner-city delivery or pick up. Cargo capacity per truck was low.

Driver comfort was not a high priority either. The cabs were extremely noisy, cold in the winter and hot in the summer, and the ride was as rough on the drivers as it was on the load (Craig 1977 49; ATABC 1978, 14).

Nevertheless, the period was one of innovation. Increases in size, capacity and power were steady and various technological fixes were employed to overcome the limits of reliability, capacity and profitability. Hydraulic brakes were introduced, as were V-8 engines of greater power, reliable electric lighting, cab heaters, heated van bodies to stop goods from freezing in winter, and the use of drawbar trailers to increase the capacity of the traction unit (White & White 1979, 65; Craig 1977, 45; ATABC 19687). Average capacities increased from 1 1/2 tons in the twenties to 5 tons in the late nineteen-thirties (DPW 1938, P10).

This period marks the beginning of the use of tandem axles. This led to a doubling of weight capacities, first in the logging industry before the Second World War (White & White 1979, 69) and after the war, in the general freight sector. But in general, the equipment was of poor quality, low in power and capacity, and not yet capable of sustaining a reliable and efficient trucking service through the mountains of the Interior.
iii: the industry

In the 1920s and 1930s there were tentative attempts to build regular truck lines. Initially, revenue came from anything that could be hauled successfully, including foodstuffs, hardware and building supplies. Drivers regularly made money on the carriage of non-way-freight, which would be added to the load that was being carried for regular customers (Craig 1977, 38; White & White 1979, 62). This practice was illegal and generally resulted in overloading trucks that were already heavily loaded. But until the passage of the Motor Carrier Act of 1931, there were no legal provisions for standard tariffs and standard waybills and the practice of carrying non-wayfreight was very common.

The industry was dominated by small owner-operators who hauled whatever loads they could to destinations such as Penticton, or Kamloops. Some operators did expand (DPW 1933 P3; ATABC 1978, 17). Because the market was not large or well developed, most early enterprises operated with a 'pioneer' aesthetic, coping as they went, creating new services and innovating in the face of constraints.

The first of the larger trucking concerns often were the old express companies, which replaced their horses with motor vehicles (Craig, Wade, 1979). They already had a system of way-houses and other support structures in place and they were used to running regular scheduled service over the difficult roads.

Barnard’s Express, the premier stagecoach and wagon express line in the province, led the early development of mechanized road transport. Barnards (later B.X. Express) had in place a highly developed infrastructure of roadhouses and agencies for their horse and wagon operations along the
Cariboo Road by 1867*. Horse power was the primary source of traction along the Cariboo Road until the paving of the Fraser Canyon route and the introduction of trucks in the late 1920s (Wade 1979, 69).

Working conditions within the industry were difficult. The quality of the gravel road surface degraded rapidly and severely in rain and snow, resulting in washouts and quagmires. In summers the roads were uncomfortably dusty and rough with washboard and potholes. Equipment suffered and the drivers had to cope with underpowered engines, overloaded suspensions and inadequate brakes on the equipment, not to mention the constraints of the environment and very long hours. Travel was slow. Craig recounts one-way journeys in the 1930s, between Vancouver and Penticton, which spanned four days (1977, 62). Delicate freight broke all to easily in the rough trucks running on rough roads and this confined the market to heavy and sturdy items.

Additionally, the drivers had to be self-reliant. Breaking down on the road to Bralorne, for example, meant hitch-hiking a ride to the nearest town with a parts shop and then getting another ride back to fix the problem at the side of the road (Craig 1977, 36). Craig shows pictures of men changing king-pins in the steering axle of their truck in the mud at the side of the road. Roadside repair was the only option when highway services

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*An early attempt to mechanize highway transport took place in 1871. The British Columbia General Transportation Company, under the management of Francis J. Barnard and Mr. J.C. Beedy set out to provide steam traction service along the Cariboo Wagon Road. Two steam traction engines from England were imported, but in the event the technology was not sufficiently robust for the conditions present on the road, and breakdowns were common. Although the steamers travelled faster than freight horses, they had to stop to refuel extremely often. This, combined with the frequency of breakdowns, the cost of fuel provision, and the damage the steel traction wheels caused to the mud road surface, rendered them unprofitable and impractical and the service was withdrawn soon after it was initiated (Wade 1979, 71).
were non-existent and gas stations and repair facilities existed only at the beginning and end points of the journey. Additionally, the equipment itself was less than reliable. Constantly increasing weights and the vagaries of the road conditions meant that equipment was being pushed to accomplish tasks it was never built to perform. Pushing these mechanical systems past their limits meant frequent failures of either motive or stopping power.

The drivers were, however, aided by the rough-and-ready design of the actual technology. Engineering tolerances were low and materials technologies, such as metallurgy, were relatively primitive, aiding repairs in the field and encouraging "haywire" repairs to get the vehicle down the road to a repair depot where proper repairs could be made.

**a: Spatial heterogeneity**

It is difficult to deal with the establishment of an effective trucking industry in British Columbia without being reminded once again of the spatial and temporal heterogeneity of service levels across the province. Phil Gagliardi's comment about the "province stopping at the Pattullo Bridge" epitomises this phenomenon (Rothenburger 1991, 113). Gagliardi was referring to the period when he took over as Minister of Highways in 1952, but the comment is even more applicable to earlier periods.

Regular regional trucking service was in place in Vancouver by the beginning of the 1920s, and by the 1930s a strong for-hire sector of the industry was operating there. In *Raincoast Chronicles Three* (1979, 61), Howard and Frank White describe a very active trucking scene around the Lower Mainland by 1921, including daily runs out to the Fraser Valley over the first Fraser River Bridge, a rail/vehicle span built between New
Westminster and the foot of the Yale Road at Brown’s Landing, Surrey. These trucks were, for the most part, converted Model T and Model A Fords rated as one-ton trucks. The most common commodities hauled into Vancouver were agricultural produce, especially vegetables and milk. Outbound commodities were mostly hardware and other goods necessary to run a farm. A decade later, ‘three-ton’ trucks with dual wheels and heavier-duty components began running around the Lower Mainland and sporadically, to the Interior (White & White 1979, 63).

The General Cartage and Storage Association (GC&SA) was formed in Vancouver in 1913 by the handful of company owners who operated the first truck fleets in Vancouver. Some of these companies were the direct forerunners of major B.C. trucking companies. For example, Kitsilano Auto Express, formed in 1918 became Arrow Transfer in 1922 and, in 1928, Arrow Transport. Arrow is one of the largest specialist heavy haulage and contract freight haulers in the province today, serving markets from Vancouver to Stewart, Alaska. However, few of these early companies have survived into the present period (ATABC 1978, 7).

Numerically, the industry of the 1920s was dominated by one-truck fleets, but the few big established firms such as Merchant’s Cartage, Johnston National, and Mainland Transfer that emerged were able to counter competition by distancing themselves from the "hay-wire" image of the small ‘mom and pop’ outfits, selling their services as more professional, expeditious and reliable than the cut-throat smaller competitors (ATABC 1978, 12). Nevertheless, they were still operating in a very competitive market and rates (and therefore, returns) were low (Motor Carrier 1968, 17).
Through the twenties and the early thirties, the industry was polarized between many small and a few large firms. Medium-sized companies were few. Needing to support costs such as office and terminal facilities, costs that smaller operators could avoid, they could not afford to match the smaller operator's prices and so lost market share. Those that did discount rates could not maintain their overheads, and folded (OTA 1977; ATABC 1978, 13). Nor could the medium sized firms compete with the capital resources of the few larger firms. Their limited supply of capital was tied up in trucks as well as in terminal facilities. They could not afford to offer what the shipping public would see as the trappings of a large, established and stable firm -- expensive printed tariff sheets, promotional material, a professional damage claims department, a substantial sales force, or an expensive advertising campaign.

Whereas larger firms could hire business managers from outside the industry, medium sized firms generally were managed by men who were truckers first, and businessmen second. Promotion from within has always been a problem for transportation management because, although it supports improved operational knowledge, it does not bring new, innovative and effective business practices into the industry.

Difficult as it was during the 1930s, the beginning of an intraprovincial truck-transport industry had began running the Interior highways. In 1933 there were a total of 163 public freight licenses in effect, of which 70 were for vehicles greater than 1 1/2 tons in capacity (table 3). A small number of these travelled the interior highways, as can be seen by the motor truck traffic figures from the Spuzzum Toll Booth for that year (PUC 1934).
In August, 1933, 167 motor trucks passed the booth (table 2). If each truck made a return trip to Vancouver, and each round trip took a minimum of four days, as many as 16 to 20 trucks might have been using the Fraser Canyon route to carry goods between the Coast and the Interior. The majority of the province’s truck traffic was still concentrated where the good roads were -- in the Lower Mainland and Southern Vancouver Island.

b: The road to Regulation

One of the most difficult problems faced by truck operators was excessive competition for limited markets due to an oversupply of service. This oversupply, which has characterized the industry through most of its history, came about because of the ease of entry into the industry. The purchase of a used truck enabled anyone to go into business, and finding customers was a matter of creating new markets or exploiting existing ones. Many outfits found it easier to find existing customers of trucking companies and to offer to transport their freight at reduced rates. The inevitable result was lower rates and large problems for the more established carriers who had to carry a capital burden for depots, good equipment, and regular business systems. Under these conditions it was difficult to maintain revenue quality and therefore extremely difficult to build up a business to a size that could exploit economies of scale and assure regular profits on.

One cause of excessive competition lies in the nature of the service’s infrastructure. Trucks travel on public highways, paying a user-fee in the form of gasoline taxes, license fees, and occasional road-tolls. Governments build the infrastructure upon which trucks depend and charge user-fees in the form of road taxes. Unlike railroads, which must raise their
own capital in order to build their own infrastructure, trucking companies need only raise enough capital to purchase operating equipment. It is thus much easier to enter the industry, requiring less capital and less long-term strategic business planning. The result is hyper-competition as new outfits, often with used and discounted equipment, buy their way into the market by slashing established rates to existing customers (Childs 1985, 41).

This could easily lead to a loss of profits severe enough that returns on investment do not justify continued operation. The principals in the industry recognized this problem and they lobbied for the regulation of trucking services to limit the ease of entry and to ensure that revenues remained undiluted by hyper-competition. Thus the move to regulate trucking markets began in the early period, although the effects of the regulation campaigns were not felt until after 1945.

One reason for this was that in the 1930s, the Depression exacerbated these tendencies (OTA 1977, 31; ATABC 1978, 11; MC 1967, 7). As the amount of goods and the money to ship them declined in real terms during the early thirties, competition increased yet again. Here the industry reflected the broader Canadian experience as truckers attempted, like most Canadians, to keep themselves employed by doing anything and charging any price that would allow them to keep the trucks running. It was a crisis of major proportions and, in the short-term, it was necessary to put off investment in new equipment and physical plant, to reduce rates in order to keep the trucks in stock working, and to lower labour costs wherever possible. Andy Scharr reports being told that he could work for twenty-five cents a day and whatever non-wayfreight loads he could get on the side in 1933 (White & White 1979, 69).
In sum, this period was marked by a series of attempts to overcome topographical, technological, and regulational barriers to the establishment of a universal, stable and profitable industry. The presence in the industry of large numbers of small operators encouraged innovation as repeated attempts were made to overcome the constraints of poor highways, inefficient and unreliable equipment, and small markets. The relatively late date at which the industry grew into a stable formation is representative of the difficulties early truckers faced.

Nevertheless, this period was marked by increasingly successful innovations which became standard responses to these constraints. Many attempts at innovation were, of course, doomed to failure, but the industry was able to generate enough attempts that some were successful. Whether in terms of equipment and manpower, or in terms of government investment in roads, or in terms of the regulation of the industry, in the years before the Second World War the foundations were laid for an industry which would become an essential part of the post-War growth of the consumer economy in British Columbia.
CHAPTER III
CONSOLIDATION, GROWTH AND STRUCTURING

The second period of the industry, a period of consolidation and growth, is marked by the consolidation of earlier innovations into a stable industry. Because conditions across the province varied from region to region at any one time, it is difficult to mark a definitive year when the industry began to make concrete gains towards stability and efficiency. For example, the first attempts at regulating the industry began in 1935. The Motor Carrier Commission was established in 1940 but, although there was growth during the decade before the Second World War, as discussed, the Depression mitigated the industry’s ability to take advantage of the changes.

The War itself marks one important phenomenon in the establishment of a regulated industry. Although regulatory mechanisms were in place before the War, the public’s acceptance of the need to centrally manage the national wartime economy encouraged governments to intervene further in the market to assure a healthy trucking industry as one aspect of a national transportation resource. Construction of the Alcan Highway as a strategic asset presaged government investment in infrastructure in the 1950s. Trucking served as an employment outlet for returning servicemen and management of the labour supply became a concern for governments. As well, the Second World War was a mechanized war and after five years of watching troops and goods travel to the front lines in trucks, the role of trucks as a viable transportation medium was firmly fixed in the minds of the public (OTA 1977, 32).
It is also possible to claim that the industry did not really begin consolidate service provision until the government of W.A.C. Bennett had built enough modern highways to complete the road network upon which trucking depended so heavily. Indeed, the last half of the 1940s was marked by extreme unevenness in the supply of service across the province and by the need to continue making improvements to equipment, infrastructure and business organization in order to assure the provision of reliable and profitable service across the province.

Nevertheless, for the purposes of this thesis, the end of the Second World War marks a convenient and useful point to begin examining the manner in which the industry grew to occupy such a ubiquitous and important supporting role in the consumer economy which has driven so much economic growth since the War. This period ended with the advent of the Recession at the end of the 1970s.

i: the roads

During this period, the road network underwent two separate phases of improvement. The first, between 1940 and 1945, was due to the pressure of building a successful wartime economy. Due to the exigencies of the war economy, the Department of Highways was mostly concerned with maintaining roads as strategic assets, and most of its efforts went into maintenance and improvement of existing roads. Later, a great pulse of road building under the W.A.C. Bennett administration completed the highway network, building hundreds of miles of new and improved roads across the province.
a: wartime construction

World War II brought a flurry of strategic highway building in the North of British Columbia. Whereas previous federal government interests lay in constructing east-west transportation corridors to counter the natural north-south valleys and transportation corridors that connect southern B.C. with the United States, this spate of construction was oriented in a north-south direction, connecting the continental United States with Alaska through Canada. Due to the Japanese invasion of the Aleutian Islands, it was recognized that these strategic north-south links were an important part of the war effort. As a result, the Alcan Highway* was built from Dawson Creek to Fairbanks. This was a monumental engineering task, requiring little innovative highway engineering but rather, massive amounts of bloody-minded hard labour as the gravel-surfaced highway was pushed through 1523 miles of muskeg and upland terrain (Coates 1992, 32). Funding for the new highway came jointly from the Canadian and American federal governments.

Neither was it enough to simply construct the actual highway itself. The terminus of the highway in Dawson Creek needed to be connected to southern sources of supply. Thus, the Hart Highway between Prince George and Dawson Creek was reconstructed from a gravel track and became part of a relatively integrated set of highways connecting Vancouver with Alaska (DPW 1948, N7; Coats 1992, 198). Additionally, a trunk-road connection was established between Edmonton and Dawson Creek. Indeed, the majority of war-materials sent over the Alaska Highway came through Edmonton (Coats 1992, 213).

*('Alaska-Canada' -- later called the Alaska Highway (Coats 1992, 32)
The rough surface of the highways, combined with the remoteness and the rugged terrain meant that average speeds were less than twenty miles per hour. It was a long and difficult journey from Dawson Creek to Alaska and it was only strategic imperatives made the use of the Alcan Highway viable. The asphalting of the highway was finally completed in 1964, but even so, the length of the journey along the route and difficulties with weather and terrain conspired to reduce population growth and human endeavour along the highway (Coats 1992, 234). However, it is important to note that the construction of the highway system with its connections has been an integral part of the route infrastructure in the Peace River region and that infrastructure supported the northern grain and petroleum booms in the late 1960s and the 1970s.

Other areas in B.C. benefitted from wartime investment. For example, the route to the West Coast of Vancouver Island was upgraded from logging roads to support the construction of the Tofino Airport and its use as a Royal Canadian Air Force flying boat base. The road remained gravel-surfaced past Port Alberni until 1971, but was nevertheless an improvement upon the loose networks of logging roads that formerly connected Ucluelet to Port Alberni (Forward 1979, 213).

The Big Bend Highway east of Revelstoke was officially opened in 1940 as a segment of the Trans-Canada Highway. Again, the route’s strategic value in connecting the ports of Vancouver to the rest of Canada was a key motivating factor in the construction of the highway. This can be seen by the traffic on the first summer it opened, which averaged 5,000 vehicles per month (PUC 1941, X10). Given numbers of less than half that at the Spuzzum toll booth three years previously, this is a remarkable increase in
traffic (PUC 1938, Q7). At an average of over 160 vehicles a day, these traffic volumes were significant, given the remoteness of the route.

The Second World War put a damper on the construction of new provincial roads, however. Almost all new construction was undertaken by the federal government for strategic reasons. The role of the Provincial Ministry of Highways was secondary to that of the Federal Government and this is reflected in the Minister's Report of 1945.

During the year highway-work was very greatly influenced by conditions surrounding the warfare in Europe and the Far East. At the beginning of the year, the invasion of Europe had not commenced but was imminent, and full-scale operations in the Pacific were considered as being a future operation, with the result that all materials required and all labour possible was devoted to the national interest, and the needs of the Provincial highway system were of secondary importance regarding the availability of material and labour.

The first objective of this Department was to maintain existing highways in their present condition; carry out such additional paving as was possible; and further to maintain, improve, and reconstruct such highways, bridges, and ferries as was practicable until such time as new equipment, materials and labour were made available.... Particular attention was paid to survey-work in connection with undertakings that will be commenced at the end of the war for general improvement of the British Columbia highway system, access roads to new settlements, and providing continued and worth-while employment for returned men during the period of readjustment. (DPW 1945, Q5).

Given limited material and financial resources, the Department of Highways concentrated on maintaining the established highway system, focussing its efforts primarily on reducing bottlenecks that were disrupting the war effort. In 1941, 435 miles of highway was worked on, of which only 79 miles (eighteen percent of the total) was new construction (DPW 1941, Q9). By 1944, the roads budget remained at approximately the same level as 1941 (1941 - $2,550,545.85, 1944: $2,492,818.33). During that year 558.2 miles of road were worked on, of which 107.66 miles, (nineteen
percent) were new construction. The emphasis through the war years was mainly on making do with the infrastructure which was in place, rather than building new roads through new territories.

In 1944, the Peace River region was not yet connected to the highway system of British Columbia. Access was through Alberta via the road to Dawson Creek and the beginning of the Alcan Highway. Likewise, the road to Prince Rupert was poor and under the control of the Federal Government. Work began on what was to become the John Hart Highway, and survey work started on building a highway from Prince George to Dawson Creek (DPW, 1945, Q2).

b: postwar construction

Wartime experiences with the inadequate highway network made it apparent to the Department of Highways that improvements had to be made. Not only were many places not served, but the increasing population across the province (due to both military build-up and increased demand for raw materials and cargo traffic) needed both roads and the new consumer products that were beginning to be shipped over the highways. Increased traffic volumes and vehicle weights over-stressed roads built to earlier engineering standards and it became apparent that bituminous surfacing of all major roads was needed to withstand increased weights and traffic densities.

The survey work of the last years of the war was in service of a comprehensive plan to upgrade the entire provincial highway system. At the end of the war, the Department was ready to proceed with urgency towards that goal. Unfortunately, as the following passage from the
Department's Report from 1945 indicates, their ambitions were temporarily frustrated.

The sudden end of the war in Europe, followed shortly by the capitulation of Japan, completely changed the situation. Fortunately your Department had already prepared a comprehensive post-war programme and had completed extensive surveys for new construction and reconstruction of highways, bridges and ferries. Immediate steps were taken to put this programme into operation. This proved to be somewhat difficult to do as conditions were very unsettled and the future trend of events hard to predict. Instead of labour, materials and machines becoming less difficult to obtain, the reverse proved to be the case. Shortages in almost everything required for construction and maintenance continued and, in addition, traffic increased in volume all over the Province (DPW 1946, Q5).

The survey work meant that although the Department was hampered by a shortage of men and materials, they were poised to make dramatic new initiatives in completing the provincial road network once conditions eased.

The 1945-46 roads budget remained below three million dollars and work was completed on approximately 742 miles road of which one half of one percent (37.5 miles) was new road. Tenders were let, however, on the beginnings of five-year projects to complete or upgrade the Hope Princeton Highway, the John Hart Highway, and the Summit Lake Highway between Prince George and Dawson Creek as well as to undertake smaller improvements in the Okanagan and on Vancouver Island (DPW 1948, M5).

Eight hundred and sixty eight miles of highway were worked on in 1948, and 131.38 miles of new highway were completed (fifteen percent of the total) as materials became available (DPW 1948, N5). The pace of road building would continue to increase over the next decade.

The period from 1945 to 1949 was a period of rapid change in the way the Department of Highways constructed roads. This period saw the
first introduction of the Department's own asphalt plants and road building equipment (DPW 1941, X7). This was a response to the post-war shortage of materials and labour, but it provided the DPW with both flexibility and quality control, allowing them to set their own pace of work and standards of quality. By 1950, six plants were in operation producing over 600,000 tons of high grade asphalt mix (DPW 1950, Q18).

Additionally, in 1948 a new method of machine-laying asphalt had come to the attention of the Department and that year's report by the Surfacing Engineer specifically mentions the speed of construction and durability of the surface (DPW 1948, N5). In 1950 a method of machine-preparing the road bed with a sub-layer of asphalt was introduced. This proved much more efficient and durable than the gravel roadbeds previously employed (DPW 1950, Q17).

In 1950, $3,319,249 was spent on hard surfacing roads, more than the entire roads budget of 1946 (DPW 1951, P11). In 1954 over 354 miles of bituminous surface were laid (DPW 1955, M12). The enormous growth of the highway network over the next decade was dependent upon the presence of these new technologies. They made it possible to construct highways more efficiently and rapidly, and to higher standards. By technical improvements in the process of road building and by technical improvements in the manner in which it organized its affairs, the Department of Highways set the stage for the period of growth which followed.

c: snow removal

Another innovation on the highways of the province was extensive snow removal (table 4). Prior to the war, snow removal was a local
responsibility. Farmers were often engaged to keep stretches of road near their property clear of snow and their labour was used to pay off taxes owed (DPW 1954, N11). Few highways were kept clear and there was no uniform provincial policy regarding keeping the various highways and passes open. Prior to the end of the Second World War there were very few passes to keep open. Post-war highway projects such as the Salmo-Creston summit and the Rogers Pass and Big Bend sections of the Trans-Canada Highway exposed the Department of Highways to new, extremely difficult snow conditions.

The demands of the wartime economy meant that the roads had to be kept open in the winter. Roads were only useful if they remained open all year, in all weathers. By the end of the war it was fully accepted that the Department had a role to play in the snow removal business.

From 1941 to 1951 the amount of road kept clear year-round had doubled. This is in spite of the total road and trail mileage in British Columbia having remained relatively constant at approximately 22,000 miles since the 1930s (PUC 1952, N6).

The importance of keeping the roads open can be seen in the increasing amount of money spent on snow removal (Table 4). In 1941 snow removal cost the province about $72,629.00. By 1954 that figure reached $1,611,332.50, over twenty times the earlier budget which had kept clear only slightly less than half of the later mileage (DPW 1954, N7). The reasons for the increase in cost per mile, clearly well beyond inflation, were twofold. The first is that standards improved, as did expectations of
Table 4
Snow removal in British Columbia, 1941 - 1954

<table>
<thead>
<tr>
<th>Year</th>
<th>miles kept open</th>
<th>snow-miles plowed</th>
<th>Cost per mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>5,220</td>
<td>65,168</td>
<td>$14.68</td>
</tr>
<tr>
<td>1944</td>
<td>6,517</td>
<td>72,534</td>
<td>$18.14</td>
</tr>
<tr>
<td>1945</td>
<td>6,943</td>
<td>100,124</td>
<td>$18.14</td>
</tr>
<tr>
<td>1946</td>
<td>9,800</td>
<td>196,000</td>
<td>$40.31</td>
</tr>
<tr>
<td>1947</td>
<td>10,000</td>
<td></td>
<td>$54.00</td>
</tr>
<tr>
<td>1948</td>
<td>13,000</td>
<td>311,000</td>
<td>$88.00</td>
</tr>
<tr>
<td>1950</td>
<td>12,000</td>
<td>343,000</td>
<td>$100.00</td>
</tr>
<tr>
<td>1952</td>
<td>13,250</td>
<td>396,407</td>
<td>$121.61</td>
</tr>
<tr>
<td>1954</td>
<td>14,702</td>
<td>450,200</td>
<td>$141.68</td>
</tr>
</tbody>
</table>

(Source: Department of Public Works Annual Reports, 1941-54.)

year-round service on the highways. Thus each mile was cleared many more times than previously. Also, many of the new miles were particularly difficult to clear, being high mountain passes or in areas of particularly difficult climate.

Additionally, the technology of snow removal was undergoing an extensive (and expensive) revolution. By the end of the 1950s, the Department was conducting experiments with jet turbine-powered snow equipment on the most difficult routes (ATABC 1978; Craig 1977, 89). More prosaically, the Department was expanding its fleet of dump trucks and fitting them with snow plows and gravel or salt-throwers to keep them busy in the winter. During the non-winter months the trucks were used to construct or maintain the roads. This equipment would sit idle during the winter months and so was a solution in search of a problem. Increased investment in physical plant and equipment was only justifiable if maximum utilization was made of the resulting technologies. Thus the solution to one problem (construction) was not only a solution to another (snow removal), but also created a need that a service like snow removal satisfied.
Snow removal was a minor part of the entire Department's budget, but was of primary importance in enabling a viable year round trucking service to the Interior. The year round service was important in maintaining the viability of the trucking industry, as well as the various mega-project resource-extraction developments undertaken by the provincial government in the years to come. Mines and hydro-power developments required large amounts of capital, and interruptions to production could not be brooked because the cash-flow requirements required the projects to be in service as soon as possible. Occasional road closures could be brooked if they lasted a few days, but no longer would the isolation of a community by snow for an entire season be tolerated.

The maintenance of year round highways meant that truckers in British Columbia could now anticipate regular and constant year-round cash-flow. Shippers wanted more than a fair-weather service and commitment of customers to the upstart trucking industry could not be guaranteed until such time as year-round service could be provided. Only with the continued commitment of the shippers could trucking companies plan ahead and rationalize their investments. This paved the way to investment in more equipment and the inauguration of new services over the maturing highway network.

d: Road traffic

By 1945, traffic on the highways of the province had increased dramatically. Whereas on average, fewer than a hundred cars a month passed the Spuzzum toll booth on the Trans-Canada Highway in the 1920s, by the opening of the Big Bend section of the highway in 1941, summer monthly figures were in the range of 5,000 (DPW 1941, X8).
Annual traffic figures for the Pattullo Bridge, on which tolls were charged, were reported from its opening in 1937 until 1954 (Table 5). The figures reflect an ever increasing volume of traffic on the province’s roads, especially in the Lower Mainland. Over eleven years, the traffic volumes over the bridge increased almost threefold.

**Table 5**

Traffic counts at the Pattullo Bridge, New Westminster, B.C.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of vehicles crossing in licence year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>1,991,577</td>
</tr>
<tr>
<td>1944</td>
<td>1,833,718</td>
</tr>
<tr>
<td>1946</td>
<td>2,547,471</td>
</tr>
<tr>
<td>1947</td>
<td>3,516,907</td>
</tr>
<tr>
<td>1948</td>
<td>4,211,619</td>
</tr>
<tr>
<td>1949</td>
<td>4,465,978</td>
</tr>
<tr>
<td>1950</td>
<td>4,987,219</td>
</tr>
<tr>
<td>1951</td>
<td>5,778,824</td>
</tr>
<tr>
<td>1952</td>
<td>5,572,815</td>
</tr>
</tbody>
</table>

*Sources, Annual Reports of the DPW, Province of British Columbia, 1942 - 1953.*

Actual registrations of vehicles give another indication of the scope of traffic growth. From 1940 to 1947, the number of registered motor vehicles in British Columbia increased from 125,790 to 175,320, an increase of 71 percent in seven years (MVB 1947, Y4). This number doubled again by 1953 (to 345,005), only six years later (MVB 1954, K31). Over 13 years the number of licensed vehicles almost tripled. The growth in the number of registered vehicles is almost exactly the same (274%) as found in the Pattullo Bridge figures (281%).

This increase was not proportionally uniform across the province. Most of it occurred in the Lower Mainland and Vancouver Island (MVB
But as further regions of the province became integrated into the provincial highway system, so ownership and use of motor vehicles rose even there.

e: The 'Flying' Phil era

At the beginning of the fifties the highway network of the province was still incomplete and still poorly maintained. After years of benign neglect punctuated only by the brief flurry of activity during the war years the little progress had been made to connect all of the 'dots on the map'. The W.A.C. Bennett government, elected in 1952, chose highway development as a means to revitalize the Interior towns that were its electoral foundation (Rothenburger 1991, 42). The Minister of Highways, "Flying" Phil Gagliardi, led the populist Social Credit government through an unprecedented spree of mega-project road building, connecting many of the dots on the map of the Interior into a single comprehensive transportation and communication network. Between 1952 and 1958, under Gagliardi's direction, the province constructed 825 miles (1320 km.) of new trunk highways; surfaced or resurfaced 2,800 miles (4480 km.) of existing highways; and rebuilt or improved another 2,900 miles (4640 km.) of local roads (Rothenburger 1991, 111). A provincial map of 1954 shows the only asphalted parts of most highways located near the main towns in the Interior (figure 6). These little islands of pavement were still located in a sea of gravel roads. On a map from 1959, however, the gravel is, for the most part, gone and the cities now are nodes in a complex and intricate modern highway network (figure 7).

Gagliardi was a colourful figure in B.C.'s political history. A Pentecostal minister with a radio ministry in the Okanagan, he quickly rose
Figure 6. Road Map of British Columbia, 1954. Source: B.C. Government Travel Bureau.
to become Minister of Highways in the W.A.C. Bennett administration.

Bennett, himself from the Okanagan, knew first-hand about the frictions of distance that residents of the Interior experienced. He gave Gagliardi the task of building the necessary infrastructure to support the connection of B.C. with both the Canadian national economy and international markets. On the topic of the Trans-Canada Highway, Gagliardi stated,

I had talked about building through the Rockies, because we had to get away from this blasted business of going through the United States to get from one part of British Columbia to another part (Rothenbury 1991, 120).

That both men knew the consequences of their actions can be seen by Gagliardi’s words in the quote in the introduction to this thesis*

* To recap: “Transportation means highways, and that means you can jump in your car any place in British Columbia and travel on a major route to anywhere in the province. Communication: nobody likes to be isolated. Once you put in a highway the immediate result is electricity and telephone. If you have utilities it does away with outhouses and gives you civilization -- the iron, the washing machine, the flush toilet, the bathtub; it gives you the complete home.... That’s why, when I set out the policy, which the premier neither dictated nor stopped, it really developed the province. Before we were in power the statement was common that the province ended at the Pattullo Bridge”. (113)
Highway, and Highway 97 through the Okanagan and Cariboo, were re-engineered, upgraded and refinished.

With the exception of the Coquihalla Highway project (ordered by Bennett's son, Bill in 1986), the entire basic road transportation infrastructure of the province was planned and constructed by the Social Credit regime under W.A.C. Bennett during the late 1950s and early 1960s.

ii: the trucks

The Second World War was a period of rapid technological and mechanical innovation. The geographical scope of the war meant that contests between enemies were often contests of mobility. Many of the pre-eminent technologies in the conflict were designed to overcome the frictions of distance in bringing battle to a distant enemy. The aeroplane, the aircraft carrier, armoured fighting vehicles and mechanized cavalry are all weapon systems which depend upon supply systems capable of both high performance and high reliability. The trucks produced for the war effort introduced new levels of power and reliability. Mass production of enormous volumes of trucks gave manufacturers an opportunity to develop advanced production engineering systems for mass production. Improvements in metallurgy, design, fuels, and organization meant not only more power and capacity, but also, increased reliability in automotive equipment. Although production of vehicles for private or commercial use eventually ceased during the war, once peace came, the trucking manufacturers had enormous production resources at their disposal and this set the stage for a post-war boom in trucks (OTA 1977, 81).

The technologies of mass transport of goods which were refined during the war found their way into trucks in many ways. First, new
systems of logistical organization were devised to cope with the huge fleets of trucks and the massive movements of materials. The conversion of supply battalions from equine to mechanized transport greatly increased the capacity and speed of resupply to the fighting forces. The speed of movement increased so quickly that the extant information and communications systems could not cope. Thus the various armed forces quickly had become experts at running large truck lines. Systems of supply and repair, and systems of operational control became necessary technologies sustaining this massive effort.

The materials technologies -- the new metals and fuels and powerful new designs -- found their way into the civilian market at the war's end. Although military vehicles tend to operate at the slower and rougher end of the operating range, often making them unsuitable for civilian transport work, the power and reliability of their components transformed the commercial truck industry.

a: truck technologies

Before the war, a five-ton truck was considered large in British Columbia. By the war's end, ten-ton trucks were commonplace and the use of truck-trailer combinations (able to haul 20-ton loads) began to appear (PUC 1947, C5).

Average Horsepower ratings had increased from well under 100 horsepower in the 1940s, to between 150 and 200 hp. By 1959, the basic pattern of truck equipment had been set for the next 25 years. Diesel-powered tandem axle tractors were pulling forty-foot trailers equipped with refrigeration units and tandem axles (figure 8). These 200 horsepower units
were hauling Gross Vehicle Weights (GVW) of up to 72,000 pounds through the mountain passes of the Interior.

Technological advances in braking systems meant that the trucks could now descend hills faster and more safely. By the end of the war, hydraulic brake systems were ubiquitous. Improvements in shoe linings meant that brakes could absorb much more heat before losing their effectiveness. Air brake systems began to be developed at this time as well, paving the way for modern semi-trailer systems with their quick-disconnect "Glad Hands *" joining the tractive unit to the air-brake system of trailers.

Another wartime innovation that had a positive impact on the industry was the search for synthetic replacements for rubber, brought about by the loss of rubber-producing colonies and the increased demand for the product. The outcome of this research was tires with greatly enhanced load capacity and improved reliability (OTA 1977, 58).

One of the constant features of the early industry's service on the province's gravel highways was the need to change or repair tires often. Changing the tire of a truck at the side of the road could take hours. This, of course, caused unprofitable delays. Also, tire failures while in motion could be very dangerous. Over the isolated stretches of British Columbia's highways, reliable tires were imperative (MC 1968, 19; Craig 1977, 101). By the 1960s, tire technology had been refined to the point where flat tires were the exception, and by the 1970s, drivers were no longer required to change tires or carry spares, due to the enormous improvement in the

*A Glad hand is a quick-disconnect coupling connecting the airlines of the tractor to the trailer. It offers an airtight seal which is easy to handle and can cope with the dirt and mud flung up by the tractor's wheels.
Figure 8. Truck configurations
quality of the tires and the provision of mobile tire services service through most of the province.

The new truck market flourished after the war. The Annual Report of the Motor Carrier Commission of 1946 remarks upon the high number of new vehicles licensed that year (PUC 1946, D2). They speculate that this was a result of wartime production becoming available to the civilian market. As well, by war's end the existing fleet had been effectively used up, with older vehicles kept running past the point at which they would otherwise have been retired. Thus, there was a demand for any new equipment, and a demand for access to the new technologies produced during the war.

By the late 1950s, some companies had integrated line-haul and local delivery networks in place. Truck technologies had stabilized into the familiar pattern: five-ton straight trucks with van bodies or flat-decks for local pickup and delivery, and tractors hauling 40 foot trailers on the highway, rated at approximately forty tons. Licensing regulations kept the trucks limited to these dimensions and weights. Technological progress was incremental. Engine technology slowly improved the available horsepower for highway tractors from 250 to 350 horsepower by the early 1970s. Average power levels remained in that vicinity until the next decade when the government began to increase weight restrictions by increasing the number of axles allowed.

b: trailer technology

Few technological innovations increased the capacity of trucks as dramatically as the change from straight trucks to semi-trailers (figure 8). Through most of the fifties, reports from the Motor Carrier Commission
indicate a general increase in both number of licenses and capacity each year as the industry responded to the growing economy. In 1956 the Commission reported,

A major portion of the total increase in the number of public freight vehicle licenses arises from the licensing of additional vehicles by established public carriers who find it necessary to increase their fleets to keep pace with the demand for service and an expanding Provincial economy (PUC 1956, L8).

This increase was primarily attributed to the purchase of additional straight trucks of incrementally increasing capacity.

In 1958 however, The Motor Carrier Commission reported a decrease of four percent in the number of licensed freight vehicles. The decrease was attributed to "the licensing of vehicles of greater carrying capacity" (PUC, 1959, C7). At this time, a large number of carriers changed from straight trucks to tractor trailers with their concomitant increased capacities (ATABC 1978, 13).

Tractor-trailers replaced straight trucks for several reasons. Straight trucks are limited in length by their difficulties in negotiating tight corners. The advantage of a tractor-trailer combination lies in the articulated hinge in the middle of the unit. This reduces the phenomenon of "off-track". This is a phenomenon where the rear wheels of a trailer or truck inscribe a curve of shorter radius than do the front wheels (figure 9). This is the source of the wide turns taken by trucks in corners. If this is not done, the rear of the unit would run over the curb. Off track limits the size of any single unit to what is practical on the specific streets and yards where it operates.

The impact of semi-trailer technology was not restricted to capacity increases or to the actual loads hauled. Tractor-trailer units had other important benefits. Because a single tractor unit could pull any number of different individual trailers, this allowed a much increased versatility and
Figure 9. Off-track.
Source: N. A. Irwin.
efficiency. A tractor can drop a loaded trailer at a depot, couple to another pre-loaded trailer, and be back on the highway immediately. This allowed companies to maximize the time expensive tractive units spend hauling trailers rather than sitting in freight yards. Lower skilled (and lower paid) workers could load and unload the trailers without tying up the expensive motive unit. Likewise, a single tractor could haul a trailer specialized for liquids one day, and another configured for lumber the next.

The ability to separate the motive unit from the cargo unit meant that a specialized division of labour could be employed on large networks, allowing increased efficiencies from each aspect of the operation. This drive for increased efficiency set drove a series of technological innovations designed to increase the productivity of each driver.

Capacity can be increased in two ways, increased weight-carrying capacity (which involves utilizing extra axles) and increased volumetric capacity. In the 1960s, some operators began to haul two shorter trailers instead of a single long one. This has the advantage of decreasing off-track while increasing the total capacity of the unit. There were several variations on the two-trailer theme. The main ones were Westcoast doubles, A-trains and B-trains (figure 8).

The precursors to 'trains' were the "West-Coast Doubles" which ran the Vancouver-California produce haul. These feature a large straight truck with a refrigerated van body of 20 - 28 feet. The truck tows a full trailer of approximately the same length. The trailer is close-coupled to the truck in order to satisfy maximum length requirements. This increases the volume available (50 feet of cargo space rather than 40 or 45 feet in a semi-trailer) for the high volume/low weight loads they carried. These combination units are common in Europe but are restricted to running the US interstate
highways only, due to their length. By replacing the straight truck with a short-wheelbase tractor which pulls two short trailers, 'trains' were born.

"Trains" are a series of trailers (usually two, although occasionally three), featuring one of a number of bogie* arrangements. An "A-train" consists of a short-wheelbase tractor pulling two short (28 foot) trailers. The trailers are connected by a "dolly" or "jeep" consisting of a single axle (occasionally tandem axles) featuring a fifth wheel to which is attached the last trailer, and a pintle-hook drawbar which attaches to the lead trailer. Thus, the A-train has two pivot points between the trailers, making them almost impossible to back up and rendering them highly unstable on the highway, especially if the last trailer is empty.

Troublesome to couple and nearly impossible to back up, the A-train configuration was nevertheless useful for the large general freight carriers because of its capacity and because it was flexible. Line haul runs could drop the smaller trailers off at points en-route and pick up empty ones. The smaller trailers could be used more efficiently (they could, for example be taken into a city delivery point much more easily than a 40 foot trailer) and gave important flexibility to the carrier's operations. As general freight carriers generally carry loads that are more bulky than heavy, the single axle bogies were not a handicap. Several firms continue to use A-trains today, including Canadian Freightways, one of the largest general freight carrier in Western Canada.

*A bogie is the grouping of axles at the various stations of the chassis - usually at the front and back. A bogie can be a single, a tandem or a tridem, with one, two or three axles respectively. Each axle can support a maximum of 12,000 pounds, with a few exceptions. Therefore, a tractor-trailer rig with tandem axles on the tractor and the trailer has five axles and can weigh a maximum of approximately 60,000 pounds.
A "B-train" similarly consists of a tractor and two trailers, but the coupling between the two trailers consists of a fifth wheel mounted solidly upon an extension of the back bogie of the first trailer. A fifth-wheel on this middle bogie connects to the pin on the rear trailer just like the fifth-wheel on the tractor connects to the pin on the front trailer (figure 8). There is only one pivot point between the trailers instead of two. The advantage of this arrangement lies in reducing the number of pivot points. This ensures a more stable ride at highway speeds and even allows the combination to backed up, although with some difficulty.

This also allows the possibility of using three axles under the coupling (a tridem), allowing the carriage of greater weight. In British Columbia, only a very few companies still use A-trains (Canadian Freightways, Motorways). B-trains have replaced A-trains in most instances.

c: surveillance technology

The itinerant nature of the truck driver's work forms an important problem for trucking managers. Given that the driver leaves the terminal at the beginning of his or her trip and is not seen by management until he or she returns, how can a manager ensure that the driver is acting in accord with company regulation and the law of the land, or indeed, treating the very valuable equipment properly? One method of surveillance which came into widespread use in the 1950s was the use of the tachograph. The tachograph is an analog instrument which records engine speed, truck speed, engine retarder use, time of day and several other parameters upon a circular 24 hour chart. These charts can be analyzed to determine hours of work, over and under-speed of the truck, correct selection of gears and
other aspects of the driver's performance. As well, accidents can be partially reconstructed from information on the chart.

Tachographs became mandatory at most companies. Special consultants offer detailed analysis service and many companies have their own analysis equipment as well. Questions of particular concern were over- and under-speeding ('lugging') the engine, fuel economy, and hours of operation. With the tachograph card, a manager can confirm when the employee started, when they took breaks, and when they actually arrived at the destination.

Additionally, the problem of driver fatigue has encouraged more severe regulation of driver's hours. Although very poorly enforced, regulations do exist in B.C. that limit driver's hours. In Europe the laws are more strict and tightly enforced. A surveillance system (analog or digital) is, however, required by law so that the authorities can regulate the driver's hours.

iii: the industry

From the end of the Second World War to the end of the 1970s, the structure of the industry slowly resolved out of the chaotic heterogeneity of the earlier period. Before the war the necessary regulatory structure was in place to sustain a stable industry. But the Depression and the War

*Recently electronic 'black boxes' have appeared. These are capable of much more complete data gathering, including all the parameters sensed by the digital engine management systems, such as oil temperature, throttle load, ambient temperatures and much more. Most companies using this technology use a simple PC-based software that provides a summary of the major events - for example only recording engine overspeeds that last longer than six seconds. However, the actual data is recorded by the micro-second so that, if needed, for example, every missed gear (and concomitant engine overspeed) can be detected. Electronic automatic transmissions and electronic anti-lock brake systems contribute further to the data that can be recorded of a driver's performance.
intervened, limiting the advantage that truckers could take of the new regulatory landscape. Large companies and integrated services had begun to emerge by the beginning of the fifties, modelled on the 'Fordist' type of industrial organization that had so successfully transformed the manufacturing industry in North America in the twentieth century. Initially, the reach of the highway network was not extensive enough to support their operations. By the time the provincial government had completed its highway building programme at the end of the fifties, however, the necessary conditions were in place for the emergence of a well-established and extensive trucking service.

a: the road to Regulation

Those operators with larger fleets were very vulnerable to cutthroat competition and were the impetus behind the formation of industry association groups. These groups became lobbying agents for the interests of the larger companies very early in their histories (ATABC 1968). The GC&SA became the Commercial Motor Vehicle Owner's Association (CMVOA) at the end of the 1920s and merged with the Motor Carrier's Association (MCA) in 1946 to form the Automotive Transport Association of British Columbia (ATABC 1978, 23). Throughout the changes of membership and name, these regional associations were heavily engaged in encouraging the provincial government to rationalize existing jurisdictional licensing regulations and to regulate entry into the industry in order to provide a reliable (and profitable) public service.

The Depression in the 1930s encouraged even further rate dilution competition increased even further. This was not a phenomenon unique to the industry and the broader society's response to the financial crisis meant
that the MCA and the CMVOA could mount a legitimate platform. The industry was in crisis, and the situation was desperate. Although their complaints had been heard since 1924, their calls to stabilize the industry finally began to be heeded (ATABC 1978, 15). In 1940 the provincial government brought into being the Motor Carrier Commission under the authority of the Public Utilities Act of 1940.

This Act came about as a result of pressure from within the industry and by the example of other jurisdictions. As early as 1930, the American Trucking Associations were lobbying for regulated rates and entry (Childs 1985, 67). This, and other efforts resulted in the creation of the Interstate Commerce Commission in 1936. The ICC was to regulate interstate trucking by setting minimum tariffs and restricting entry into the industry through the granting of restrictive licences. These licences were restricted both geographically (stipulating the origin and destination of allowable shipments) and by commodity. For example, a produce hauler could not back-haul manufactured goods (Glaskowsky 1986, 11). These fundamental regulatory principles became the foundation of Canadian attempts at regulation of the industry.

In Ontario, the Ontario Trucking Association (OTA) efforts were rewarded by the transfer of responsibility for the licensing of Public Commercial Vehicles in Ontario to the Ontario Municipal Board (OMB) during 1934. Here the principle of 'public service' as a factor in the granting of licences was first introduced in Canada. The OMB reported that,

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In or about 1933, it became quite apparent that truck licences were being granted by the Department of Highways in excess of the public demand and, as a result, a policy was adopted to grant only such licences in future as the services of the public required." (OTA 1977, 42).
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The intent of this principle was to ensure that revenue did not become so diluted by excessive competition that no carrier could survive. If this happened, service to the public would be diminished (OTA 1977, 44). It was recognized that, for the public to benefit from a stable and reliable trucking service, it was necessary to assure the profitability of the trucking industry. Thus, governments intervened to support the growth of a nascent industry.

Interveners before the OMB (against the granting of a new licence) would attempt to demonstrate that existing carriers provided sufficient levels of service to the satisfy the need of the public, and that a further service provider would threaten the existence of the existing good service. Conversely, new applicants would engage local shippers to testify that their needs could not be met by current service providers in order to prove that the new service was a necessary addition. Attempting to gain entry into the industry, even when successful, was time-consuming and costly.

All of the above principles were adopted by the British Columbia government with the passage of the Public Utilities Act of 1939 which legislated the creation of a Motor Carrier Commission. The Commission would rule upon 'conditions of licence' both geographically and by commodity. 'Public service' would have to be demonstrated before a licence was granted (PUC 1956, L3; MCC 1974, M12).

The process of legislating trucking regulation in British Columbia was not unitary or smooth. The first attempt to do so came with the passage of "Part V" of the Highways Act in 1935. In 1939, the Motor Carrier Act, intended primarily to regulate the industry, was passed (MCC 1974, M3). Since then, the Act has been amended almost yearly to improve it and make it reflect contemporary conditions in the industry.
The administration of the Act, and the regulatory powers contained therein, was assigned to the Public Utilities Commission (PUC). The Motor Carrier Branch was a branch of the PUC under the responsibility of a Superintendent of Motor Carriers and set up as a quasi-independent office in Vancouver, with sub-offices throughout the province (MCC, 1974, M3).

Until 1974, the Motor Carrier Commission operated, under a single Superintendent, as a quasi-independent body under the auspices of the Public Utilities Commission. The Commission, under the Superintendent was responsible for the granting and administration of licences of carriage (as opposed to vehicle licences, which fell under the purview of the Motor Vehicle Department) in the province of British Columbia. It required companies to present and file tariffs which were held and publicly displayed at the Commission’s headquarters in Burnaby. It also ruled on tariff increases and decreases, which had to be brought before the Commission as proposals and justified.

Significantly, the rule of the Motor Carrier Commission was specifically focussed on minimum tariffs and whilst rate increases were easy to justify, rate decreases had to face the presentations of "interveners" (existing carriers in the License District) who would argue that dilution of revenues would jeopardize existing service standards and thus were not in the "public interest".

In addition, the Commission was tasked with other minor regulatory matters such as safety and standardization of bills of lading, etc. One of the Commission’s responsibilities has proved to be problematic throughout its history: enforcement. Sparsely funded, the Motor Carrier Commission has seldom enjoyed enough inspectors and agents. The single Superintendent had a small research and administration staff but these were kept busy by,
for example, the 3,910 applications for new licenses in 1941-2 (PUC, 1942, L7). Likewise, each regional license district had a very small staff of Inspectors and Clerks who are responsible for administration and enforcement over a large geographical area (figure 10). Thus, the Motor Carrier Commission was (and is still) dependent upon members of the industry to bring complaints of license violations to its attention. Enforcement was (and is) carried out by the various police forces in each region, including the RCMP which functions as a Provincial Police Force (MCC 1974, M6). They are helped in this task by the employees of the Ministry of Highways who operate the weigh scales and who check conditions of license as well as operating weights throughout the province.

Enforcement is thus a lengthy and complicated administrative process requiring coordination between members of the industry, the Ministry of Highways, the various police forces and the Motor Carrier Commission. During the years of the late 1970s and early 1980s, the industry in the province was effectively deregulated by diminishing enforcement efforts through reduced personnel levels. Additionally, there was an administrative disinclination to prosecute violators.

In 1974, under the New Democratic Party government, the Energy Act of 1974 was passed. This revamped the role of the PUC. Responsibility for the Motor Carrier Commission was passed to the Ministry of Transport and Communications. Additionally, the Motor Carrier Commission was expanded from a single Superintendent to a commission of three persons. This reflected the contemporary government's orientation towards more effective government intervention in matters of public policy and, briefly, the Commission grew in size and responsibility (MCC 1974,
This trend was reversed under the subsequent Social Credit administration through administrative fiat and budgetary control.

The functional structure of the Motor Carrier Commission had several important implications for the way the industry developed. Firstly, licences were granted within 'Licence Districts' (fig. 10). Licences to serve the whole province (especially in General Freight) were not granted. The fragmented licence authorities made for a geographically-fragmented industry. A carrier hauling in Licence District 5 (Okanagan) could, for example, haul goods to Vancouver (Licence District 13), but not to Merritt, mid-way between the two. Likewise, a carrier hauling steel pipe to Kamloops might not have the licence authority to carry a return load of any other commodity.

As a result, it was difficult to develop a complete network of route services to the whole province. Growth mostly came about as the result of acquisition of existing licensed carriers for their licence authorities. This required large amounts of capital and mitigated against the ability of the more ambitious companies to compile extensive networks. Ironically, this meant the 'public good' was less well served in remote communities as they tended to be served by local carriers who 'interlined' shipments.

*Interlining was the practice whereby a company gives freight to another carrier for delivery in areas where the initial carrier has no licence authority. Generally interline charges result in tariffs higher than would be possible if the initial carrier could carry the freight entirely within its own network. The necessity to handle the freight a second time also tends to delay the shipments and/or damage them. The result is two or three day service. The further from Vancouver a community was located, the greater the chance that it was necessary to interline shipments. It was not until late in the history of the industry that route networks became integrated sufficiently for a single carrier to serve the whole province, thus minimizing the practice of interlining.
b: industry structure

The middle period of the trucking industry in British Columbia was a time where transportation services began to be organized on a large-scale industrial basis. Carriers attempted to combine numerous route authorities were united under single integrated companies to provide integrated service schedules to most of the province. The requisite management systems appropriate to large industrial endeavours were brought into the industry and produced great improvements in efficiency and profitability, not to mention service. Some of the trucking concerns in British Columbia began to organize in ways that suggested the "Fordist" type of industrial organization that had so successfully transformed the manufacturing economy in North America in the twentieth century. Economies of scale were gained from a modified type of 'vertical integration' in which each segment of a company's service became a division in the corporate structure, feeding its output to other divisions.

For example, a "highway" division specialized in over-the-highway haulage. The drivers did not unload their trailers, but rather left them at regional terminals where warehouse crews stripped the trailers and reloaded the individual shipments onto the regional Pick-up and Delivery (P & D) trucks.

Companies also began to centralize accounting and administrative departments, usually in Vancouver. These departments handled accounts receivable, accounts payable, human resource matters, and corporate finance concerns for the whole organization. Even the mechanical and repair services were often specialized to the point that they would contract out their spare capacity to outside customers.
In this way, "modern" business practices came to the trucking industry. Except for the trucking businesses of the two major Canadian railroads (CN and CP Express), most of the large, successful trucking companies in B.C. developed out of businesses that had originated in the province during the earlier period. They grew with their markets and responded to the many changes in the growing provincial economy.

By the sixties, a few larger players had emerged. Even though the names of the companies have changed, the resulting industry structure remains to this day. Only ten percent of the companies account for as much as eighty percent of the operating revenue in the industry (Transmode 1990, 25; StatsCan 1992, 24). In British Columbia, however, there are more small and medium size companies than is the norm in the rest of Canada due to the unique aspects of the regulatory experience in B.C. (Transmode 1990, 112).

Growth by accumulation or consolidation was the best possible strategy because purchasing a small to medium size company (with its concomitant license authority) was often cheaper and faster than applying to the Motor Carrier Commission for new or extended conditions of license, a process that could take as long as eighteen months.

One of the problems with this process was the need to have a "potential" customer as an advocate for the company's new service before the Commission. The customer would state that existing services were inadequate for their needs and that the "public good" would be served if a new carrier was allowed to enter the market. This was often seen by the Commission as sufficient justification to award new license authorities to the petitioner.
The problem for the trucking companies was that a good relationship had to be established with a customer before they would go to the trouble of attending hearings for the trucking company, hearings often held in Victoria. The building of this 'relationship' with the customer often entailed providing illegal service for the client until such time as the license authorities were awarded. Running illegally brought risks of heavy fines or impoundment of the vehicle and load, or loss of license authorities already possessed by the company.

Thus, if a company could find a ready source of capital, the easiest way to expand was through the purchase of another company and its license authorities. Johnston Terminals Ltd, one of the largest B.C. firms provides a case in point. Advertising in the Motor Carrier magazine's Ship-By-Truck feature section in 1967, Johnston's ran separate advertisements for three of its divisions: Heaney Cartage & Storage in Victoria; Shorty's Transport Division for Western Canadian linehaul; and West Coast Freight Ltd, for Vancouver Island haulage. Each division operated under a particular geographic license authority. Johnston Terminals, like most B.C. companies, acquired these companies and their authorities in order to expand their service areas, but initially kept them as separate divisions under their existing names (figure 11). During the 1970s the large trucking concerns began to integrate such divisions under a single corporate umbrella, eliminating the earlier divisional names and giving all divisions a single corporate identity.

The process of integration was a long and difficult one. Large companies attempted to consolidate their services to the whole province, but by the end of the sixties, most were still known for the territory in
Highway Hauling?
it's no sweat for the
BIG FLEET!

FOR REGULAR TRAILER LOADS
... up to 60 feet and the legal 44,000 lb.
maximum, Johnston's offer one of the larg­
est highway hauling fleets in B.C. Equipped,
licensed and manned to deliver to any place
in the Province. Any time and on time - with­
out fail.

FOR EXTRAORDINARY LOADS
... Johnston's offer the largest and most
specialized fleet of heavy duty vehicles in
B.C. Including flatdeck semis from 12 to 30
tons, lengths to 60 feet. Low-bed semis from
25 to 60 tons. And specially built adjustable
semis with steering trailers for loads up to
200 tons, lengths to 100 feet or more. All
licensed and backed by men with the know­
how to haul any load, any time, on time,
anywhere in B.C.

Daily freight to and
from Vancouver Island
Call Johnston for door-to-door service

Freight picked up today is shipped out overnight and
delivered to consignee the next day. You get a fast,
economical, door-to-door service to any location in
Vancouver, Nanaimo, Victoria, and all way points. For
tariff and service details, call any Johnston office.

Daily freight to and
from Vancouver Island

To and from daily
West Coast Freight Limited offers fast, efficient daily
service from Vancouver to Nanaimo, Duncan and
points throughout Northern Vancouver Island.

All kinds of loads
The West Coast Freight fleet has equipment to ac
commodate any type of load you'd care to name . . .
van trailers, flat decks, refrigerated carriers and low
beds.

WEST COAST FREIGHT LIMITED
a division of Johnston Terminals Ltd.
Nanaimo, Phone SK 3-1276  Vancouver, Phone HE 3-8261
Duncan, Phone 746-6321  Courtenay, Phone 334-4041
Port Alberni, Phone 723-8181  Gold River, Long Distance

A new Johnston service in Western Canada.
Our other services have built us a reputation
for fast, efficient dependability . . . now, we're
applying that reputation to a brand new serv­
ice . . . long distance highway freight hauling
throughout the four western provinces. Now
you can call Johnston for daily service to
Alberta, Saskatchewan and Manitoba.

A complete range of highway transport
equipment. Van trailers, refrigerated units,
flat decks . . . you supply the cargo and we'll
supply the equipment from one of the most
complete fleets in Western Canada.

Figure 11: Advertisements for the various divisions of Johnston's Terminals,
Figure 12. Lee’s Transport & Millar and Brown advertisements
Source: Motor Carrier, Jan 1960; and Oct 1968.
which they were dominant. None served the entire province. The individual companies were identified by their service areas: Millar and Brown with the Southern Provincial Highway to the Kootenays; Carsons and Public Freightways (T. & H. Cariboo Transport) to the Cariboo; Canadian Freightways, Lee’s Transport Ltd and Chapman’s Freight Lines served Prince George and the Peace River Country; Van-Kam Freightways served Kamloops and the Okanagan; and Clark Reefer Lines hauled west to Prince Rupert and to the Central Interior (figure 12).

By the late 1960s, overnight service in the general freight sector could be provided from Vancouver to Prince George, the Okanagan cities, Kamloops and Vancouver Island. Areas west, north and east of Prince George, and the West and East Kootenays generally received two or three day service.

Trucking companies during this time faced a particular problem in providing overnight delivery. Truck-load trailer traffic (where the trailer was delivered to the customer by the highway driver) could be completed overnight. General freight, however, had to be unloaded, sorted and re-loaded into local delivery trucks. In Prince George, for example, the trailers would arrive 8 - 10 hours after departing from Vancouver at approximately eight in the evening. It takes 2 - 4 hours to unload, sort and re-load freight, and that meant that local deliveries did not leave the Prince George terminal until noon.

As a result, companies advertised (and charged) overnight delivery as a premium service. For example, Canadian Pacific Express, the trucking arm of CP Rail, advertised a special premium overnight service from Vancouver to Vancouver Island throughout the 1970s (BCTA 1978, 37) Special rates
applied to that service only and were considerably higher than those for regular service. Standard practice, especially for the heavier industrial commodities was for the shipments to take two to three days to get to the eventual consignee. Additionally, freight-handling methods (hand bomb-ing, hand-trucks, dollies and fork-lifts * ) were primitive, with real risk of damage during the handling of freight. It is a general maxim in the industry that each time freight is handled, the risk of damage increases proportionately.

Prices were generally based upon a minimum 100 lb. shipment (anything less was charged at the 100 lb. tariff) with unit discounts at the 1,000, 5,000 and 10,000 lb. levels. For example, 100 lbs. might cost $24.00, rendering a per pound cost of $0.24 per pound. Nine hundred pounds would cost $236.00 (900 X $0.24). One thousand pounds to the same destination would cost 200.00, giving a per-pound cost of $.20.

This bulk-pricing favoured industrial customers, rather than small businesses. Indeed, services were often initiated to support new industrial-scale resource harvesting initiatives, rather than the growth and development of small towns, because volumes of bulk materials to be shipped from these projects were usually larger than the volumes of the goods and supplies that would move into the site. Ironically, a small, high value shipment thus cost more per pound and was handled less expeditiously.

In the retail sector, large integrated concerns such as Woodwards, Safeway and Kelly Douglas benefitted from these policies because they had the volumes to take advantage of it. Initially they used Common Carriers but as their markets grew, they began to operate their own fleet of trucks. They built their operations until they could muster the economies of scale.

*see Glossary
necessary to afford the dedicated truck service that made their expansion affordable.

The completion of the highway network and the establishment of a relatively stable and effective industry underwrote the economic expansion of the 1960s. Because this economic growth was tied to the growth of consumer demand and levels of consumption, truck transport played a part in the changing lives of most British Columbians.

c: trucking and inter-regional integration: Woodwards Stores Ltd

As the trucking industry matured in the sense of finally being able to provide reliable, expeditious and economical service to more and more of the province, enterprises formerly restricted to the Lower Mainland began to expand to the rest of the province. An example of this is Woodwards Stores Ltd. Formed in Vancouver in 1891 by the Woodward family, it rapidly became a major local retailer. In addition, their grocery, hardware and dry goods businesses enjoyed access to the whole Coastal market through the scheduled service of the Union Steamship Company. Upcoast residents could, upon established credit, send orders down to Vancouver with the steamships and receive goods back on the next sailing (Rushton 1974, 94). Thus, part of Woodwards' success came from servicing customers beyond their local market. Until reliable road access to the Interior was present, however, their goal of being "British Columbia's Retailer" was thwarted (Harker 1976, 7).

Their first store outside the Lower Mainland was built in Port Alberni in 1953 (figure 13). As Vancouver Island already had a relatively complete network of roads along the eastern coast and over to Port Alberni by 1930,
Woodwards were able to successfully establish their first store there. From Port Alberni, Woodwards were able to serve the mid-Island region from Parksville to Tofino by road and the entire west coast of the Island with marine transport through Barclay Sound.

The next Woodwards store (Kamloops) was not built until 1959 (Harker 1976, 56). Others appeared in short succession. It was no coincidence that the company's rapid expansion in the Interior occurred at this time. A threshold had been crossed in terms of road transport. With the new highways and new large-capacity trucks running on them, they could now expand from their Lower Mainland location. The friction of distance was no longer the barrier to growth and development that it had formerly been. Woodwards soon built up their own fleet of trucks to service the regional stores, and maintained their own regular line haul schedule out of large central warehouses in Vancouver. It was both the completion of a network of paved roads and the existence of regular truck service to these towns by public freight carriers that allowed Woodwards to consider running their own fleet of trucks to support their extra-regional expansion. Large trucking companies were regularly running to the Interior and store's managers knew that they could take advantage of this to enter lucrative new markets for their mid- to up-market department stores (Harker 1976, 81).

The impact of stores like Woodwards on towns like Port Alberni was dramatic. Apart from the prestige that accompanied the 'possession' of a big-city retailer, the material goods that accompanied this urban intrusion brought small-town residents' lives closer to those of their big-city cousins. Because the regional stores carried the same basic goods as those in the urban centre, small towns now enjoyed the fruits of
Figure 13, Woodwards' expansion through British Columbia.  
competitive urban retailing, receiving the same new fashions, new hardware and tools, stylish furniture, and the latest books. With Woodwards expansion, there began a process that continues today, transforming the consumer world, bringing the goods of city life to rural residents, integrating and homogenizing regions into a provincial culture and economy.

**d: limits to transport-integration**

The process was hindered by the peculiar way the trucking industry was structured, however. Against this homogenizing impulse -- one that came from distributors, retailers and consumers, not necessarily the trucking industry -- were arrayed a number of constraints that rendered the creation of a single provincial market difficult. Among the constraints were intense competition, low returns, and during times of slowing economies, overcapacity.

The historically low rate of return on operating expenses in the industry (figure 14) had a vast impact upon the way companies did business. Since the beginning of the 1950s, profit levels have seldom been greater than five per cent, and were often much less (StatsCan 1992, 8, PUC 1967, D8). This meant that companies had to spend, for example, 96 cents in order to make a dollar. The companies had to grow extremely large in order to spread low unit-returns over an extremely large number of shipments. Beneficial economies of scale could only be created by making operations extensive and serving every point along the various routes to maximize efficiencies.

Thus, linehaul costs, paid for by charges for transporting goods to the far edges of the system, helped make the transport of shorter-distance
goods more profitable. In practice it was seldom that straightforward, but nevertheless, filling in the blank parts of the routes enabled the companies to economically build upon an existing route and line haul structure, making the returns from these intermediate points more profitable than if the service had been started from scratch.

e: Public Freightways

Public Freightways, a B.C. company that grew from a small regional enterprise into what became the largest trucking concern in the province illustrates the expansion/consolidation of trucking operations during this period. Public Freightways fortunes traversed a trajectory from a small owner-operated outfit in the 1930s, through domination of the British Columbia market as an employee-owned public company, to bankruptcy and dissolution in 1989.

Public Freightways began with the acquisition, by a 25 year-old Dutch immigrant named Jimmy Vanderspek, of a single 1934 International Harvester truck. Vanderspek Transportation Ltd. ran regular scheduled owner-operator service between Vancouver and Kamloops, Kelowna and Vernon for the next nine years (MC 1968, 7).

Vanderspek's working conditions were typical of the early industry. The truck (and later, trucks) were five ton straight trucks with large, usually home-built wooden van bodies. Brakes were hydraulic, of poor reliability and capacity. The roads were largely gravel and the schedule was determined by the length of time it took a truck to make a trip. Service was not daily, and certainly not overnight. The driver was responsible to deliver the loads to the consignee themselves and to maintain (and often fix) the trucks on their own, in an environment that was subject to extremes of
temperature and precipitation. They had to be very self-reliant as their jobs took them through very isolated territory. Vanderspek became one of the few 'regulars' on the Fraser Canyon route, attaining the status of "Cog Grinder".

With the advent of the Second World War, Vanderspek converted his trucks to construction work and built airports at the north end of Vancouver Island. After the war, Vanderspek bought a trucking and coach company in Hope and began hauling freight and passengers to the Interior once more. It was quite common in those days to combine passenger service with freight service in a vehicle capable of carrying both. However, Vanderspek decided to concentrate on the freight business and soon sold the bus line (MC 1968, 9).

Public Freightways was formed in 1951 as a Limited Company in a merger between Vanderspek Transportation Ltd. and Winton Transfer (a Vancouver firm with authority for the Upper Fraser Valley and the Interior, itself created out of the acquisition of a number of smaller concerns) and seven other small companies. This combination allowed the new company to thoroughly service every point in the Lower Fraser Valley, including Vancouver and this base was the foundation upon which expansion to the rest of province was built (MC 1968, 11).

The company began building a rationalized line haul route to the southern Interior in the late 1950s. To that point service had extended only as far as Princeton. As the company acquired new licenses by acquiring new companies, new destinations were added to the network. Sometimes

*an affectionate but ironic term given to the characters who travelled the Fraser Canyon by Walter Harrington, a driver and regular columnist in the ATABC’s newsletter (MC 1968, 17).
the companies were absorbed directly into the Public Freightways, but in other instances they initially retained their local identity.

Service to Grand Forks was begun in 1958 and was extended to Nelson in 1960. These developments included service to Rossland, Trail, Salmo and other West Kootenay points.

In 1965, an important merger occurred when T. & H. Cariboo Transport (a large concern in the central interior operated by R.W. 'Shadow' Reid) was purchased by Public Freightways. T & H's license filled in important gaps in Public's route coverage. Figure 15 is a Public Freightways advertisement from 1968 and on it can be seen a truck in T & H livery, the corporate identity of T & H having not yet been subsumed under that of Public Freightways. The advertisement also illustrates the fragmented nature of Public's routes, dividing them into three divisions: Number 1 east to the Kootenays, Number 2 north to Williams Lake, and Number 3 to the Lower Fraser Valley. New service to Lillooet, Ashcroft, Williams Lake and Quesnel offered the opportunity to build a service to the northern province by serving all of the intermediate waypoints.

The geographically fragmented nature of the licensing process can be seen in other aspects of the company's scheduled service route structure. The map reproduced in figure 16 was a common image on the industry's promotional calendars of the sixties. Of interest is a list of "points served with scheduled service" which includes the names of 156 places. The service extended as far east as Salmo and Nelson, and as far north as Williams Lake. But the schedule pointedly does not mention Kelowna, Penticton, or Vernon. Neither was Kamloops or Prince George on the list.
Three Way Action in Freight Hauling!

FAST DAILY SERVICE TO THESE MAIN B.C. AREAS

WEST KOOTENAYS
Scheduled daily service between Vancouver, the Trail-Nelson area and the Arrow Dam site, via Hope, Princeton, Grand Forks and Castlegar... with connections to Kaslo and Nakusp.

SOUTHERN CARIBOO
Scheduled daily service between Vancouver and Williams Lake, via Boston Bar, Lytton, Ashcroft, Cache Creek and 100 Mile House... and between Williams Lake and Kamloops... plus three-times-weekly service between Vancouver and Lillooet.

LOWER FRASER VALLEY
Scheduled service twice daily between Vancouver and all important points in the Lower Fraser Valley.

SOUTHERN CARIBOO TRANSPORT (1958) LTD.
HEAD OFFICE & WAREHOUSE: 1445 CHARLES STREET, VANCOUVER 6, B.C.

Phone: 255-5111 for Fraser Valley & West Kootenays
Phone: 255-6561 for Southern Cariboo.

Call Your Friendly Line!

Figure 15. Public Freightways route advertisement. Source: Motor Carrier, Oct, 1967.
Other important services the company offered came under the category of "Charter and Contract". Public Freightways had acquired the license rights to offer non-scheduled "charter trips" anywhere in the province. A charter trip is one in which a driver and vehicle is sub-contracted to a shipper for the exclusive carriage of that shipper's goods. Examples in the company's service were the carriage of milk products under contract to the Kootenays for the Fraser Valley Milk Producers Association; the carriage of refined ore from Granby mines to Vancouver; the British Columbia distribution of gypsum products for a Vancouver manufacturer; and the specialized cartage of explosives from Port Mann throughout the province (MC 1968, 17).

Another license authority covered the haulage of heavy loads (dubbed "Heavy-haul Division") throughout the Fraser Valley and the Fraser and Thompson River canyons. Heavy-haulage is defined by the Motor Carrier Commission as:

- machinery and equipment used in logging operations, sawmills, factories and mines and bridges; general construction
- machinery and equipment, structural and reinforcement steel, timbers, piles, poles, cement in sacks, pipe and lumber. Also other freight which owing to its weight and/or size requires special loading or unloading equipment or special equipment for its transportation (B C Motor Transport, Jan 1989, 87).

Licenses were issued for specific commodities only and another license would be needed to haul other commodities.

The regulatory restrictions were not completely arbitrary, however. First, the commodities specified include most of the heavy and outsized items likely to be transported over the contemporary roads, especially in a developing economy. Secondly, regular scheduled service assumes an existing (or easily developed) market in the license areas. Most of British Columbia was sparsely populated and this meant that there was not
sufficient demand to justify regular service. Many areas were left out of the Act on its introduction in 1940. As commerce and motor traffic grew in a region, for example the Terrace/Prince Rupert area, it was declared as a License District and brought under the jurisdiction of the Motor Carrier Commission (PUC 1952, L5). In this way, all of the province was included in the regulation of the industry by the end of the 1950s.

The fractured approach to the provision and acquisition of license authorities for specific geographic areas and specific commodities was a usefully conservative approach, allowing service provision to be added as the market grew. Incremental growth allowed local companies like Public to avoid over-extending themselves in a market where access to capital was limited.

By 1968 Public Freightways was a large operation with over 140 employee-shareholders and 400 hourly employees (MC 1968, 17). It handled freight through its own specially designed and constructed terminal in the Still Creek area of Burnaby, having fled the relatively high land rents of Vancouver in 1967 (MC 1968 18; North & Hardwick 1992, 213).

An article in The Motor Carrier, the monthly organ of the ATABC, celebrating Public Freightways' 25th anniversary of operation emphasizes the modernness of the company's operations and how 'progress' and 'efficiency' were being applied to the problem of moving heavy goods from one place to another. Vanderspek (still the president of the company) placed high stock on "attaining operational efficiency" (1968, 27) by standardizing equipment throughout the company. His success can be seen by the figures in the Table 6. This standardization represents quite a feat given that with each new license acquisition came a heterogeneous mix of various models of equipment.
Capital was difficult to obtain in British Columbia. It was the

Table 6.

Public Freightways fleet inventory, 1968

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 diesel-powered tractors</td>
<td></td>
</tr>
<tr>
<td>- all but 4, Kenworth</td>
<td></td>
</tr>
<tr>
<td>- 30 of them tandem axle</td>
<td></td>
</tr>
<tr>
<td>- all Cummins Diesel powered</td>
<td></td>
</tr>
<tr>
<td>22 gasoline-powered tractors</td>
<td></td>
</tr>
<tr>
<td>- all International Harvester</td>
<td></td>
</tr>
<tr>
<td>- used for P &amp; D work</td>
<td></td>
</tr>
<tr>
<td>63 gasoline powered straight trucks</td>
<td></td>
</tr>
<tr>
<td>- all but 5 International Harvester</td>
<td></td>
</tr>
<tr>
<td>- used for P &amp; D work</td>
<td></td>
</tr>
<tr>
<td>60 van trailers</td>
<td></td>
</tr>
<tr>
<td>- 25 to 40 foot</td>
<td></td>
</tr>
<tr>
<td>- 12 reefers</td>
<td></td>
</tr>
<tr>
<td>- all Can-Car brand</td>
<td></td>
</tr>
<tr>
<td>35 flat deck trailers</td>
<td></td>
</tr>
<tr>
<td>- all Columbia Trailer brand</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Motor Carrier 1968, 16)

creation of the Public Freightways Employees Association in 1955, an employee shareholder plan, that provided the company with the capital it needed to re-equip a mis-matched fleet of equipment acquired from many smaller operators. By organizing the entire operation into specialty divisions and analyzing each operational factor in detail, the company's managers attempted to bring the economies of a Fordist approach to the trucking industry. Divisions of labour into specialty services meant increasing professionalism and efficiency. The scale of operations resulted in improved purchasing power and the company exploited this to optimize its cost-revenue ratio.

Tire types, engines, transmissions, clutches were all standardized.

Rationalization was extended to the office staff and administrative functions,
which according to the 1968 article, include the provision of a "machine room" in the new terminal where the controller, "already is hatching plans to bring Public into the cost-cutting world of computers" (MC 1968, 13).

Much was made, too, of the mechanization of the labour process and of the size (and consequent prestige) of the various aspects of the facility. Thirty two opposing loading bays surrounded 11,880 square feet of sorting space which featured the "Sl Low Tow" conveyor automatic freight handling equipment" (MC 1968, 18). This machinery was touted as moving "over 400 carts" per hour with automatic mechanical sorting of the freight to its destination bay. A separate article explained the mechanical complexities of the system and lauded the labour-saving cost efficiency of the investment, quoting the manager of the facility as concerned "to eliminat [sic] inefficiences [sic] in the labor factor". In a few years, however, the system had been abandoned due to its complexity, the frequency of breakdowns, and its inherent lack of flexibility.

By 1968, Public Freightways was moving 1,110 shipments per day, composing over seven millions pounds of freight a week from over 1800 shippers. Average charges were $.80 per hundred pounds (MC 1968, 12). The firm's `glamour' divisions were hauling specialized loads such as explosives, refined ore and heavy equipment. It had a string of terminal facilities in all the major towns along its routes, including Cloverdale, Haney, Abbotsford, Chilliwack, Hope, Princeton, Grand Forks, Kinnaird (Trail, Castlegar and Nelson), Topley, Lillooet, Ashcroft, Cache Creek, 100 Mile House and Williams Lake (MC 1968, 6). Each of these towns featured a terminal and its own P & D drivers, each division optimized for its specific operations.
Public was not the largest operator in Western Canada at the time, but it was the "largest scheduled inter-city line haul and nonsked charter or contract carrier in Western Canada without affiliations with a corporation of national or international status" (MC 1968, 4). Nevertheless, it was not large enough to attract capital from outside of the province. As a result, the owners of the company were forced to devise alternative ways of finding the steady stream of capital needed to keep up with the constantly changing conditions, both technical and spatial, of the provincial trucking industry.

Their first response to the difficulty of finding capital in the province was to start the innovative employee-share scheme in 1955. By enrolling their employees in the process of raising capital, they were able to finance the first twenty years of the company's growth. They also used their ownership of extensive warehousing and storage facilities as material assets upon which they could capitalize (Malcolm). Increasing property values served to secure access to more capital. These strategies allowed them to escape being swallowed up by larger eastern trucking companies as happened to Chapman's Express, for example, which was acquired by GILL. Trucking of Montreal. (Craig 1977, 89).

By the 1970s, however, inflation and rapidly increasing operating expenses, especially in terms of fuel costs and wages, forced Public Freightways to look for ways to become yet bigger and more comprehensive in order to rationalize these new high expenses. In 1971, the company merged with Johnston Terminals Ltd., the second largest general freight operator in the province.

Even this was not enough, however, to protect the newly enlarged company from the financial stringencies of the early 1980s (Malcolm). Land prices declined severely as interest rates rose. New holding companies
were formed to attract new capital to the operation. For example, the union of Johnstons Terminals and Public in 1971 took place under a holding company called Transtech (Malcolm). Shares in Transtech were sold to Cornett Capital Corporation, a national holding company looking to diversify its assets. Cornett’s share was later purchased by Versatile Corporation. In the late 1970s, Peter Bentley bought Versatile as part of Canfor Corporation’s diversification programme. Each turnover gave the company access to new capital.

During the Recession, however, the corporate investors ran into financial difficulties and sold their shares back to the original owners. In a desperate bid to inject new capital to reorganize and improve the performance of the trucking divisions, credit was obtained from the Bank of British Columbia.

In 1985, the Bank of B.C. was purchased by the Hong Kong Bank. The Hong Kong Bank, in an attempt to reverse the dramatic losses that had been suffered on bad loans, called Public Freightways’ loan. This marked the beginning of the end for the company. Johnston Terminals/Public Freightways declared bankruptcy in 1989, ending the working careers of employees who had been with the company as long as 37 years (Malcolm).

Public Freightway’s experience is emblematic of the trajectory of the industry through its middle period, (1945-1979), from ad-hoc entrepreneurialism to large industrial-scale operations implementing the latest in management practices, marked by growth, optimism and a sense of ‘Progress’. The mechanical technologies of trucks had become sufficiently advanced that the rigors of heavy loads and harsh terrain were less of a barrier to regular reliable service. New business practices attempted to implement technologies of management which improved profitability and
efficiency. With such intense downward pressure on revenues due to competition and inflation, and at a time when operating ratios were so high, economies of scale and technological efficiencies became the Holy Grail of the corporate truck sector in British Columbia. Bigger was better. It had easier access to capital. It could spread risk safely over an larger number of transactions. ‘Bigger’ had greater purchasing power to cut operating expenses and a larger advertising budget. Bigger companies could afford to professionalize more aspects of their operations, from drivers to phone staff, to sales and marketing. In this way the industry consolidated around a few extremely large corporations offering integrated provincial, national and international service, leaving a the small independent trucking concerns serving niche markets.

**f: private and contract carriers: road transport and primary industry**

This study has focussed primarily on the for-hire sector of the trucking industry. The for-hire sector, however, generates less than half of the overall revenues produced by the industry as a whole (StatsCan 1992, 3; Transmode 1990, 5; TT Oct 1995, 13). Private trucking fleets move as much or more volume of freight as do the trucks of the for-hire sector. The Bulk Commodity sector of trucking is extremely important in a provincial economy which concentrates on resource extraction and private fleets do the majority of the work in the transport of bulk commodities in B.C. Private fleets haul goods for retail/wholesale distributors, for food and beverage distributors, for suppliers of construction materials, for petroleum and other bulk fluid products, for the forest products industry, in agriculture,
and in manufacturing. Governments and utilities also have large private-use fleets.

This is a much more difficult sector to study however. Private trucking has always been unregulated. There are no statutory requirements for reports of any kind and, because private trucking is so pervasive, data collection is very time-consuming. Nevertheless, a private study by the Canadian Trucking Association estimates that private truck fleets carried over $29.8 billion of freight, or 1.4% of Canada's gross domestic product in 1993 (TT Oct 1995, 39). Private carriage represents about "60 per cent of the heavy trucks on Canadian highways" (TT Oct 1995, 39). Although provincial figures are not broken out of the aggregate numbers, the forest industry in B.C., which depends upon such types of haulage suggests that company-owned or contracted trucks make up similar, if not larger percentages of the provincial fleet.

g: trucking as producer services"

The economy of British Columbia is heavily dependant upon the sale of resource products to overseas or continental markets. Industrial-scale resource harvesting in British Columbia would be impossible without truck transport. Trucks move the raw material to sites for processing or semi-processing. Then they haul the products to export points, or directly to the final customer. Trucks bring supplies and are used in the construction of the necessary infrastructure. From the 'crummies' and pick up trucks that move personnel, to the giant off-road logging trucks hauling enormous loads of logs, trucks are ubiquitous in the forest industry. Giant dump trucks are essential part of the open-pit mining operations. Semi-trailer trucks rush fish from the westcoast to centralized fish plants in the Lower Mainland.
h: trucking in the forest industry

The role of trucks in supporting these enterprises can be best illustrated by a closer look at the forest industry. In 1993, MacMillan Bloedel operated 525 vehicles on Vancouver Island, hauling logs, lumber, wood chips and hog fuels, and kraft paper and Canfor/Weldwood operated 211 trucks in its logging operations (TT Oct 95, 39).

The forest industry converted from rail logging to truck logging after the Second World War. Initial attempts at truck logging had begun by the late 1920s, but it not before the late 1930s that tandem axle trucks of sufficient robustness and capacity appeared (White & White 1979, 71). Rail logging was limited by the terrain to valley bottoms and immediate sideslopes, leaving large stands of timber inaccessible or uneconomic to harvest (Taylor 1984, 181). For small contract loggers, maintaining a few trucks and an elementary road network was far easier and cheaper than running a small railroad. Not only was it cheaper to construct a logging road on a per mile basis, but trucks could negotiate terrain almost twice as steep as the railroads, making it possible to build roads shorter and straighter than a rail line which had to maintain a maximum 4 percent grade (Taylor 1984, 171). Truck technology allowed logging contractors to exploit previously unaccessible stands of timber.

Several contractors converted to trucks before 1939. Comox Logging, for example, began running trucks at Ladysmith in 1936. By the 1940s, they had eight diesel-powered trucks hauling 150 million board feet of logs annually. Even where Comox Logging ran rail logging operations, they used trucks to haul the timber to intermodal transfer points. By trucking the logs to the existing rail lines they were able to expand the reach of their rail operations (Taylor 1984, 174).
The Depression was another factor in the conversion from rail to road. Purchases of new steam equipment virtually stopped during the depression (Taylor 1984, 163) and operations were greatly reduced in scope. By 1932, the Department of Railways (a branch of the Public Utilities Commission) reported 12 of the 45 logging railways in the province closed (Taylor 166, 135).

Interestingly, the War gave steam logging a short reprieve as the resources for developing new technologies in the woods were scarce and the use of existing infrastructure was maximized in the war effort. Wartime shortages in trucks, tires, gasoline and road building machinery meant that it was easier for the Victoria Lumber and Manufacturing Company to build a rail line to their Nanaimo Lakes operations than a road system. This was, however, the last major logging railroad built in B.C. (Taylor 1974, 176).

After the war, the conversion from rail to truck logging accelerated. The old rail equipment with which the loggers made-do during the war had worn out. Truck technology had reached the point where new heavy-duty trucks which were suitable for woodlands operations and they were now available in large numbers (White & White 1979, 71). Rather than replace the worn out rail equipment, most operators elected to change to truck logging. By the end of the 1950s, there were few logging railroad operations left.

Trucks were, of course, employed in the construction of the very roads that other trucks would run on, bringing new efficiencies to road building. At the same time, the increased capacity of trucks was employed on the highways as the semi-processed timber and lumber were trucked to assembly docks for export. Trucks began to haul wood chips and hog fuel from saw mills to the increasing numbers of new pulp mills, conserving
waste. From the construction of access routes to the raw materials to the transport of semi-finished goods to export points, the forest industry incorporated trucks into every level of its operations (MacKay 1982, 193).

The conversion to truck technology helped both large and small logging companies. Small outfits and "gyppo" operators* could afford to utilize this technology even with their relatively poor access to capital. Roads could be quickly bulldozed into the timber. Used trucks could be purchased from other industries and converted for log hauling and public highways and other logging routes offered opportunities for trunk routes* without any capital investment. The barriers to entry into the industry were substantially lowered and smaller scale operations could log the most remote valleys and mountains.

Trucks also proved of use in the larger operations. Prior to the large-scale introduction of trucks after the war, large, integrated companies began to develop through consolidation and acquisition (MacKay 1982, 167). This required the management of large amounts of capital. The same road network that was employed in harvesting the resource also encouraged the adoption of modern management methods throughout the forest companies' holdings. Roads eased travel and communication between branch operations and headquarters, and also required their own management systems. On Vancouver Island some of the forest companies developed road networks which exceeded the size of the local public roads network. Truck logging allowed the large companies also to maximize return on their

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*small-time, undercapitalized, non-union operators, often managed by their owners on-site
*a trunk route is the equivalent of a line-haul route. A trunk route is the main roadway between the points were the timber was collected and the points where it was delivered to the mill for processing.
forest resources, lowering costs and easing access to unharvested timber, giving them a flexibility unattainable with rail logging.

Most logging trucks run on industrial roads, which are not open to the public. Thus, provincial size and weight restrictions do not apply to them. Their dimensions have increased accordingly. Driver productivity rose as a result. The forest sector has been the source some of the most important innovations in terms of increased truck power and capacity. Some of these innovations have subsequently been passed on to the highway sector.

i: specialist technology in primary industry

Whether they run on public or private roads, trucks in the forestry industry are specialized to haul bulk commodities short distances between harvesting site and primary processing, or from primary processing sites to export sites.

Optimized for a single commodity, the trailers are designed for efficient loading and unloading. Those that haul wood chips have top-hinged full length tail gates through which the chips flow when the truck is tipped upright on a ramp.

Logging trailers dispense with the weight of a flat deck and utilize skeletal pole trailers. Where lumber is hauled exclusively, flat-deck trailers are maximized for length and carrying capacity, overall vehicle lengths of 82 feet and as many as eight axles, give a loaded capacity of 132,000 pounds (TT 03/95, 35).

The short distance hauls are tied to the pacing of the machines that the trucks service. Thus operations are often round-the-clock, requiring several shifts of drivers. Loading and unloading is performed with the assistance of specialized machinery, whether the ramps and hoppers of
wood chip operations, or the fork-lifts, carriers and cranes of the lumber mills. The routes are repetitive and routine, and efficiencies are gained through the management's (and drivers') intimate and detailed knowledge of the repetitive operations.

In the forest industry, as in other productive sectors of the economy, trucks provide a type of affordable mobility that makes extensive industrial-scale operations possible. More flexible than a railroad yet able to effectively move raw bulky commodities to their initial processing site, trucks allow a measure of centralization of production because they reduce the friction of distance between those sites and their hinterland resources.

The provincial for-hire trucking industry

With the completion of the modern road net in the late-fifties and early sixties, opportunities grew for regular and reliable road transport. Paved roads meant that equipment wear-and-tear could be reduced. As transit times improved, overnight delivery thresholds were pushed further and further from Vancouver. Expeditious service gave the trucking companies the feature they needed to gain a competitive edge over rail freight services. New highways opened up new markets to the trucking companies, not only at the terminal point of a route, but also in all of the towns located along the highways on the way.

This encouraged consolidation in the industry. By 1965, it was now possible to think in terms of a full provincial network of services offered by one firm. The highways were not only routes for the transport of goods, they also put branch terminals within reach of corporate managers from Vancouver. Improved road surfaces and highway building technologies
meant that equipment could be more efficiently utilized; lasting longer, travelling faster, and carrying more.

As a result, in the 1970s there was a flurry of mergers amongst the trucking companies, creating large new integrated operations. With the exception of CP Transport (the trucking division of CP Rail), most of the large companies formed by the mergers were companies such as Public Freightways/Johnston Terminals, most of which were domiciled in British Columbia. Through a process of licence purchases and the occasional granting of new licence authorities, these companies consolidated their services to the entire province. Additionally, other companies served significant parts of the province only. By this time, regular overnight service was provided from Vancouver to Prince George, the Okanagan cities, Kamloops and Vancouver Island. Areas west, north and east of Prince George were not served with overnight delivery from Vancouver, and the West and East Kootenays generally received two-day service.
CHAPTER IV
DEREGULATION AND RESTRUCTURING

The end of 1970s and the early 1980s were years of difficulty and change for the trucking industry in British Columbia as it responded to a larger crisis in the economy. Interest rates soared over twenty percent in 1981 and inflation was very high. Capital became scarce and growth was minimal or negative (Transmode 1990, 12).

This chapter examines the state of the roads, the trucks and the industry in the period during and after the Recession. The road network, truck technology and industry structure explored in this chapter reflects the current state of the roads, trucks and industry in the province. It also examines some of the implications of this for the provincial economy and culture, suggesting some of the ways in which trucking service and growth, development and integration are connected.

i) The roads

As interest rates rose in the last part of the 1970s, government investment in new roads began to slow. This was the result of a number of factors. The province was now covered by a fairly complete and integrated road network (Appendix 1). Major new roads were less necessary. Inflation and constantly improving engineering standards meant that the costs per mile of highway construction had risen enormously. Plus, the remaining untapped routes traversed difficult terrain -- easier routes had long been exploited.
At the same time, extensive upgrading work on the existing highways has occurred. Major projects like the decade-long improvement of Highway 97 to Prince George have transformed a narrow and twisting piece of 1950s engineering into a wide, sweeping highway on which trucks can maintain high average speeds.

In the past decade two major projects dominated highway construction in British Columbia. The Coquihalla Highway and the new Island Highway projects connected places that were already serviced by major highways but reduced the journey time between points. In the case of the Coquihalla, it supplemented the Fraser Canyon and Hope-Princeton routes to Kamloops with an added spur to the Okanagan (Appendix 2). The New Island Highway parallels the existing Island Highway but much of the routing is new, by-passing cities and towns wherever possible in order to speed transit times.

The Coquihalla Highway from Hope to Kamloops was completed in time for Expo86 in Vancouver. The difficulties of the route, especially along the old Kettle Valley rail line between Hope and Merritt were two-fold: terrain and climate. The route rises steeply out of Hope in an area which receives extremely heavy snowfall and is subject to high avalanche risk. Large concrete snow sheds were built to protect those parts of the highway in greatest danger of inundation. The steepness of the route meant that provision had to be made for many lanes, as the average speed of trucks up these hills was very low. Similarly, the downhill sections had to be engineered to avoid corners that required vehicles to slow appreciably and risk overheating their brake systems. A number of runaway lanes were created in anticipation of the inevitable accidents. Environmental concerns,
specifically the preservation of stream beds in the valleys the highway traverses pushed costs even higher.

The project was beset by large cost overruns. These were a result not only of the expensive engineering, but also of time pressures in the effort to complete the highway before the opening of Expo86. No cost was spared. The result was enormous cost overruns and controversy (Globe & Mail Sept 27 1984, A1). The ensuing political difficulties this brought upon government meant that the Coquihalla served as a brake on new highway construction. Succeeding governments, anxious to avoid the embarrassments of the Bennett regime, proceeded much more cautiously with new highway construction.

The extension of the Coquihalla system to the Okanagan had been included in the original plan but could not be built immediately, given the high cost of the first part of the project. The Coquihalla Connector, which joined Kelowna with Merritt, was finally completed in 1991. This was completed on time and on budget. The two highways changed access to the Interior by reducing travel times between Vancouver and Kamloops and the Okanagan by as much as a hour -- twenty-five percent of the previous journeys. These areas had always enjoyed relative proximity to Vancouver but the reduced transit times presaged a new round of development in these towns.

The new roads ushered in another 'innovation' in provincial highways -- toll booths (Vancouver Sun April 21 1992, A1). The expense of construction was to be offset by user-fees. The tolls on the Coquihalla are set at approximately $10.00 per axle, leaving trucking companies with the choice of paying to save time between Vancouver and Kamloops or using the longer Fraser Canyon route without the toll.
Tolls are not new, however. Rather, they disappeared from the highways of the province for four decades. Tolls were charged on the Pattullo and Lion’s Gate bridges when they were first constructed and were charged for the use of the Fraser Canyon highway. They disappeared when the costs of constructing these projects were paid off, subsequent projects were financed directly out of provincial borrowing. The new tolls are a response to the increasing difficulties, both political and financial, that governments have experienced raising capital during the 1980s. Politically, tolls are useful because they can be being represented as user fees in order to justify loans that otherwise would be politically or financially unpalatable.

Tolls are one way a government can provide needed infrastructure in times where indebtedness is prohibitively high or when access to capital is otherwise restricted.

The Island Highway project was initiated by the New Democratic government in the 1990s. Much of the project involves new construction rather than reconstruction and the government’s resolve to push ahead with this $1.1 billion project has generated much debate over whether the highway is really needed, whether it can be afforded, and over the mechanisms the government put in place to build it, (Journal of Commerce Jan 9 1991, 1). It will, however, significantly cut travel times on the Island by bypassing the bottlenecks around the growing towns on the Island.

In conclusion, this period of road construction has been focussed on improving engineering standards with the view to reducing accidents and transit times. The high cost of new construction, such as the Coquihalla Highway project, has severely limited government’s abilities to engage in new highway construction of the type found during the second period.
Alternate funding sources such as user-fees (tolls) which guarantee the payback of the capital investment have re-appeared.

ii: The trucks

'`Bigger is better' has been the watchword in the trucking industry since its beginning. The trajectory of equipment design and innovation is one in which 'bigger' equals 'Progress'. Small, unreliable units gave way to larger, more efficient and powerful equipment. It is a process already traced through the 1 1/2 ton Fords and Internationals of the 20s and 1930s, to the new 40 foot semi-trailers of the late fifties to the B-trains of the current regime.

As formerly state-of-the-art equipment aged and was replaced by new technology, it has traditionally been passed down the hierarchy of the industry. Old highway tractors become city tractors. Safety, fuel-efficiency, power and comfort are concerns that are much more important in highway work due to the mileage involved.

Line haul operations have always been considered the epitome of trucking. This is so even though off-highway equipment is often larger and more powerful. When 350 horsepower diesel highway tractors were the standard on the highway, off-road logging trucks were operating with 600 horsepower Detroit Diesel engines coupled with Allison automatic transmissions, hauling loads of as much as 40 tons. Still, highway trucks represent the state of the art, partly because of the mystique of the job, and partly because the highway tractor is more ubiquitous and versatile than the relatively few off-highway behemoths.

There are three main strands in the development of contemporary truck technology: engines, cargo structures and configurations, and running
gear; all of which were continually refined to produce greater load capacity per unit of labour input and better fuel consumption (those being the two most important variable expenses in a trucking company’s budget).

**a: Engines**

Engines have changed in two ways: increased power and increased fuel efficiency. The way that these benefits have been developed and implemented has implications for driveability, safety, and reliability. By the end of the 1950s engines averaged 200 horsepower. Torque was approximately 1000 foot/pounds. By comparison, the large V-8 gasoline engines of American automobiles in the 1960s had power outputs of approximately 350 horsepower and 300 foot/pounds of torque. These gasoline engines were some of the largest and most powerful motors made by domestic automobile manufacturers and were found in the pick-up trucks and smaller (less than five-ton) trucks of the time, as well as in cars.

Torque is important because it is the torque that ‘does the work’. Torque is a measurement of an engine’s ability to rotate a shaft against a load. High torque is necessary to maintain highway speeds with heavy loads. High horsepower yields high speed, which is less important for goods vehicles. What matters to a trucker is maintaining speed on grades, rather than accelerating quickly from rest, as it is losing speed on a grade that limits the speed of transit.

The OPEC crisis of the first part of the 1970s precipitated a change in truck engine technology. Fuel prices quadrupled and suddenly, fuel efficiency became imperative in order to operate profitably. The state-of-the-art truck engine at the beginning of the 1970s was a turbo-charged 335 or 350 horsepower diesel of approximately 12-14 litre capacity, which
generated 1200 ft/lbs. of torque. The engine operated in a speed range from 1600 to 2100 r.p.m. The faster the engine turned, the more power it produced.

In response to the quest for fuel efficiency, engine manufacturers (Mack, Cummins, GMC/Volvo, Caterpillar) began to build what were called "high torque-rise" engines. Through the use of turbo-chargers, intercooling, and improved fuel-injection systems, they were able to produce peak torque values at the lower end of a 1100-1600 r.p.m. range. Turning slower, these engines use less fuel while developing the same, or increased power (torque) than the earlier engines. Current engines are designed to generate more power with even less overall fuel consumption. Electronic sensors determine the load on the engine and apply only sufficient fuel to satisfy that demand.

Advances in design and metallurgy meant that the life-span of engines increased significantly. Truck engines now can last as much as a million miles, although most engines are rebuilt or replaced after 500,000 miles (TT Dec 1995, 24).

Highway tractor engines currently generate 400-450 horsepower. This is sufficient to deal with a sixty-ton load on U.S. Interstate highways, but only barely adequate on the steep grades of the B.C. Interior. A recent article in the trucking press announced that the three main engine manufactures (Cummins, Caterpillar and GMC/Volvo) now offer engines in the 500-600 horsepower range (TT 10/95, 41). Digitally controlled and featuring advanced, low-maintenance auxiliary systems, these new engines deliver increased power at very little cost in fuel economy than the existing 450 horsepower range. Most of the new engines are built to the same 12-14 litre capacity as older models. New engine management systems and
improved turbo-charging and inter-cooling have increased specific power outputs without a corresponding increase in cylinder capacity.

Recently engine manufacturers have had to cope with increasing pressure to lower emissions. Truck engine manufacturers were not subject to this pressure until later than automobile engine manufacturers. As a result, they were able to employ digital engine management technologies (developed in the aerospace industry in the late eighties) to eliminate unburned fuel and reduce other emissions while increasing power where it can be most effectively utilized.

The high torque-rise engines are also quieter. Trucks are increasingly subject to noise-abatement legislation and current models are much quieter, inside and out. Inside a modern Kenworth for instance, with a 450 horsepower Caterpillar diesel, the driver can talk at a normal conversation-level, and can hear the stereos and CB radios that equip almost every new truck. Outside, the loudest sounds are tire noise and the whine of the turbo-chargers.

The trends in truck technology in British Columbia are driven by more than local conditions. Indeed, most technology comes from American manufacturers. Nevertheless, the province is recognized as a particularly difficult test of truck technology and many experimental programs have been started in B.C. For example, Bobell Express West of Abbotsford hauls compacted garbage for the Greater Vancouver Regional District to Cache Creek, a twice daily round-trip of approximately five hundred kilometers through the Fraser Canyon with trucks that weigh over sixty tons. They have managed to persuade manufacturers to use their equipment for experimental tests. Engines are experimental high-power (450-600 hp.) models developed by Cummins Diesel Corporation and owned by them.
The heavy-duty transmissions, ceramic clutches, proprietary synthetic oils, high speed radial tires, and other components they employ are supplied and owned by manufacturers who utilize Bobell’s regular and particularly difficult runs as an experimental laboratory. (Bobell, n.d.) In this way, Bobell reduces its operating costs and the manufacturers can test their development programs in real world situations. The ability to perform well in the Fraser Canyon means that a technology is likely robust enough to perform well elsewhere.

The current state-of-the-art can be seen in Bobell’s bulk garbage/chip trucks. A typical truck is of tridem-B configuration with a minimum of nine axles. Because both commodities are high volume/low value commodities, the trailers extend the truck’s dimensions to the legal limits. They are as wide (8.6 feet), as long (82 feet), as tall (13 feet) and loaded, weigh as much as a truck can legally weigh in B.C. (132,000 lbs.).

Their 450-600 horsepower engines have digital engine management systems. Computers monitor load conditions, ambient temperatures, the driver’s inputs through a throttle sensor, and many more factors to provide a drive-by-wire control system. The driver is no longer connected to the engine by a mechanical linkage, but rather, his or her inputs on the virtual throttle are merely another source of data for the engine management system. Speeds are governed to 95 kilometers per hour.

The actual speeds attainable by trucks have generally been reduced in the last two decades. "Double-overdrive" transmissions which allowed speeds in excess of 70 m.p.h. in the 1970s have generally disappeared to be replaced with systems optimized to provide the lowest fuel burn at optimal highway speed. The emphasis has turned to regular operation within strict parameters of engine and truck speed. This promotes long life and
increases fuel economy. Major companies now reinforce this by insisting that their drivers stick to these limits, often in the face of driver resistance.

To the driver, of course, covering the ground as quickly as possible is of paramount importance, especially when being paid by the kilometer. To the truck owner, however, the reduction in transit times is not worth the expensive penalty of increased fuel costs. Larger companies regularly sponsor, for example, "fuel-miser" awards for drivers and keep large wall-charts, illustrating each driver's ability to wring the best fuel economy out of the equipment.

b) The trailers

Rolling stock has changed drastically in the last two decades. Liberalized regulations have allowed numerous trailer and axle configurations, improving efficiency, increasing payload, and improving road safety.

There has been a steady progression of legislation allowing increasingly larger truck units. The result has been increasing operating efficiencies enabling one driver and one vehicle to haul more goods at lower unit costs.

Until the early 1980s, straight semi-trailers with tandem rear axles were the rule. Of a length of up to 45 feet, in van or flat-deck configuration they were versatile enough to cover most of the range of cargo they were presented with. From the late 1950s to the middle of the 1980s, the vast majority of truck trailers were of this configuration. The length limit on semi-trailers rose to 48 feet by the end of the 1980s (TT Mar 1994, 29). Currently, the Canadian Trucking Association is advocating a 53-foot maximum length for semi-trailers (figure 17). It is unlikely that semi-trailers
will grow any longer, however because of the phenomenon of off-track (figure 9).

The General Freight sector of the industry comprises mostly van (dry and refrigerated) and flat deck trailers of either semi-trailer or A-train variety. Variations include drop-floor vans for high-volume, low-weight commodities; B-train vans with sliding middle bogies which can be loaded straight-through one van to the next; and hard-top, curtain-sided 'China-tops' which offer the ease of loading of a flat deck with the weather proofing of a van (figure 17).

In the bulk sector, specialized trailer bodies are the norm. Here form follows function and is commodity-dependent. Haulers of wood chips and other low-value bulk commodities use tridem B-train trailers which crowd the dimensional limits of the regulations. Logging trucks regularly employ an extra intermediate set of axles (a 'dolly' or 'jeep') between the tractor and the trailer, increasing their permitted loading. Bulk powders are moved in B-train combinations featuring bottom-dump hoppers. Liquid bulk tankers are the most specialized of all, featuring particular tank linings for particular materials, including stainless steel for milk, for example, and aluminum or plastic for petroleum products (Ingram and Phippard, 114).

Economies of scale have been combined with efficiencies in delivery (tipping whole trailers of chips; 8000 litre per minute belly-drops of gasoline; roll-on/roll-off containers for garbage) to continually improve the productivity of the truck and driver. Working at Esso Petroleum Canada, for example, the author would regularly deliver 250,000 litres of gasoline in a 10 hour shift. Depending upon the length of the run, increases in loading/unloading efficiency can improve productivity significantly, adding an additional load to the driver's day.
Figure 17. Truck capacities in B.C., 1995, and proposed changes- RTAC. Source: CTA-ACC 1995
Figure 18. Trailer configurations, 1995.
Source: R. A. Campbell,
c: brake technology

Although most improvements have been incremental rather than revolutionary, braking technology has kept pace with engine power. New revolutionary innovations in braking have not yet taken hold. Disc brakes, for example, are still rare and Anti-skid Braking Systems (ABS) on trailers are not common in B.C. Nevertheless, new friction materials, increased sizes of brakes, and the increase in the number of axles (with the corresponding increase in numbers of brakes) has meant that braking ability has kept pace with the increased loads. Additionally, industry journals report that increasing percentages of new-build American trailers are being sold with ABS as standard. In the United States, all new trailers will be required to use ABS after March 1, 1998 (TT May 1994, 14).

Engine braking has also improved as the size and power of the engines has increased. Engine retarders ("Jacobs Engine Brakes" or "Jake Brakes") have been a part of the industry for over 40 years. Most work by reversing the operation of the cylinder valves, effectively turning the engine into a compressor. As cylinder sizes rose and compression ratios increased, so has the amount of braking power the engine can generate.

The combination of the two -- wheel brakes and engine brakes -- has combined with new highway engineering (which eliminates tight low-speed corners at the bottom of hills) to mean that, even at current high weights, trucks can maintain higher overall speeds without overheating their brakes.

In conclusion, truck and trailer technology have been continually and incrementally refined. Although the basic configuration established in the late fifties and sixties -- an independent tractive unit pulling a cargo-carrying trailer or trailers employing a fifth-wheel coupling system -- has remained the standard, the trucks and the trailers have changed greatly. Increased
power and capacity has been combined with specialized loading/unloading technologies to vastly improve the efficiency of the equipment. The effect of all of this has been to decrease unit operating costs per ton/mile, allowing new economies and offering improved operating revenues to trucking companies.

iii: the industry

The trucking industry has gone through a costly and extended period of re-structuring since 1979. Conditions in the industry had stabilized by the early 1970s, and growth and profits continued along with the growth in a provincial economy that had continued for over twenty years. Unprepared for the Recession of the early 1980s, the industry was caught with extensive debts from attempts at consolidation and diversification. Those debts could not be paid down because the general economy had shrunk in real terms during the first part of the decade (figure 19). Trucking companies lost money on their existing operations, which were under-utilized. Neither could they turn fixed assets like land and terminal facilities into cash due to the decreased re-sale value of those assets. This left them unable to meet their debt burdens and many ceased doing business.

The quantity of goods hauled by the industry declined from 1978 to 1981 (figure 20). Revenues declined as well. Indeed, they declined faster than the Gross Domestic Product (figures 19, 21). A series of mergers, acquisitions and expansions had left many companies in Canada with large debt burdens that could only be paid back under optimistic growth conditions (Malcolm). When markets shrank, companies faced difficult prospects.
Figure 19. Trucking revenues verses GDP in Canada, 1976-1987.
Source: *Transmode*, 1990
Figure 20. Traffic growth in B. C., 1976-1987.
Asset to revenue ratios declined seriously during this time. In 1983, land values dropped precipitously. Companies which had previously relied upon increasing land values to guarantee their borrowing were left unable to sell of assets to cover their exposed positions (Malcolm).

Profitability declined severely. The early 1980s were marked by major losses for the industry in general. Operating ratios* were greater than 1.0 for several years and even when recovery began, remained very low at 0.97 or 0.98 (StatsCan 1992, 28). The traditional response to increasing expenses had been growth -- larger networks introduced new efficiencies of scale that reduced unit costs. Operations had grown to the point where the major players were already very large. Therefore, further consolidation and growth required even more capital, and capital was expensive and difficult to find during the recession.

Long-established practices came under scrutiny and the rigors of the new economy forced inefficient operators to re-structure or fold. Union participation plummeted. "Company jobs" were replaced by owner-operators. New specialty services such as the courier/small-parcel shipment sector grew rapidly, diminishing the market share of traditional trucking operations.

And, most importantly, government regulatory support, which had been the foundation of a relatively stable industry, was withdrawn. Although deregulation has been uneven, the effect has been to reduce the protection from adverse competition that had underpinned existing carriers' operations.

*Operating ratios measure the relationship between operating revenues and operating expenses. An o/r of 1.0 indicates that it costs $1.00 in expenses to earn $1.00 of revenue. Therefore, an o/r of 0.98 means that profit levels are two percent.
Amid these many changes the trucking industry remains an essential part of the provincial and national economies. The resulting industry in the 1990s is more efficient -- able to do more with less and to do it at a cheaper unit cost. There have been winners and losers in the substantial restructuring that occurred in the industry and in the community it serves, but for the most part, shipment standards are higher and rates lower than they have ever been. Whether the restructured industry can sustain this remarkable service given the low profits that it generates remains a question, but the importance of trucking industry to the provincial economy is unarguable.

a: The road to deregulation

With the 1980s came a change in the political climate of North America. The triumph of the political ideologies of Margaret Thatcher, Ronald Regan and, in British Columbia, William Bennett, derived as they were from the neoclassical economic theory of Milton Friedman, loosened government intervention in markets. Their propositions included a structural change in the role of governments in the trucking industry.

In regards to the American experience with the deregulation of trucking, Nicholas A. Glaskowsky states, "The position of the deregulators was, in the main, a philosophical one strongly opposed to (protective) government regulation of an industry that they believed did not need and should not be "protected" by such regulation" (Glaskowsky 1986, 2). Among the practical improvements predicted were lower rates, elimination of wasteful backhauls, new services, and increased efficiency and productivity within the industry.
Like regulation, deregulation came to British Columbia from outside jurisdictions. Government regulation of utilities and transportation markets was reversed in England and the United States before the experiment came to British Columbia. The most notable examples were the deregulation of airline sectors in the U.S., and later of the American trucking industry. By the time deregulation reached B.C., however, its initial vigour had been diluted and deregulation exists more in principle than in practice in B.C.

Even in its most extreme form, 'deregulation' means the relaxation of specific regulatory inhibitions rather than the total elimination of the regulatory bodies (the ICC, the Motor Carrier Commission, etc.). These bodies continue to exist, but role they play has changed. They are still a repository for filed tariffs. They still grant operating authorities and licenses for the transport of commercial goods. Their role has changed in that they no longer operate as restrictive bodies. Rather they are an informational resource for governments.

Like any instrument of public policy or social engineering, the general results of deregulation are difficult to assess on a general level. In the U.S., Glaskowsky reports that some shippers pay less, and some new services have come into being. Some carriers can eliminate empty back hauls and cut their line haul costs that way, passing the savings on to the customers. The system in America is therefore somewhat more efficient.

Glaskowsky reports, however, that it is only the larger customers and the larger trucking companies who are reaping the benefits of these policies. Small customers and small towns have seen either an increase in cost or a decrease in service. A large number of companies have disappeared, unable or unwilling to compete in the deregulated marketplace. In the Truck Load sector, with its low capital cost requirements, 12,000 new firms have been
created. In the Less-Than Truckload (LTL) sector, however, there has been an increased concentration of market share in the top four firms. In 1978, the top four companies served 20% of the American market for LTL freight. The top ten companies carried 39 percent. By 1985, the four largest carriers hauled 35% of the market (an increase of 75%), and the top ten dominated the industry, moving over 60% of the freight (Glaskowsky 1986, 25).

Ironically, one of the predicted benefits of deregulation was the removal of alleged monopolistic conditions in the industry under regulation. In the LTL sector of the industry, this has not happened. In this case, regulation was not as out of step with the actual market conditions as its advocates claimed.

In the United States, it was the passage of the Motor Carrier Act in 1980 which changed the role of the ICC. This is not the only way to effect structural change. Regulations are only as effective as their enforcement. Some governments have reduced the regulatory roles of government transport bodies through budget cutbacks. This reduces staff and limits enforcement efforts. This happened in British Columbia during the 1980s under the Social Credit administration of Bill Vander Zalm.

During this period the author was working in management and marketing for the largest courier in the province. The company was a target for upstart competitors who often ran illegally - carrying loads for which they were not licensed, serving destinations not in their license area, or discounting rates beyond their filed tariffs in order to purchase market share. For example, a company licensed to haul only to Victoria from Vancouver would also take loads to Nanaimo. Other companies would offer rates priced 20% below Loomis', even though their filed tariffs were higher.
The only response available to the company was to report these violations to the Motor Carrier Commission in Victoria.

In coordination with the RCMP, the Motor Carrier Commission would attempt to catch the perpetrators in action, charging them with violations of the Motor Carrier Act. This enforcement arrangement was unwieldy and inefficient. Communication between the Motor Carrier Commission and the regional police forces varied from bad to mediocre. For charges to be laid, violators had to be caught in the act and evidence had to be gathered. The size of the License Districts (in this case, all of Vancouver Island) meant that it was difficult for the poorly-staffed regional office in Victoria to know what was happening in Port Alberni, or Port Hardy (figure 10).

The net result was frustration for the civil servants who remained on their jobs and de facto deregulation on the highways of the province. In candid conversation, an agent of the Motor Carrier Commission in Victoria explained his branch’s inaction by blaming it on his lack of staff, complaining that he simply could not concentrate on enforcement when his hands were full dealing with licence applications.

b: deregulation in British Columbia

The above approach still exists in British Columbia. Whereas trucking within federal jurisdictions (inter-provincial trucking) was deregulated in 1989, the provincial Motor Carrier Act of 1974 is still in force. The responsibility of the Motor Carrier Commission to regulate the industry under the Act still exists and, especially in terms of the geographic scope of license authority, the Commission stills applies the rhetoric of regulation to its operations. Provincial carriers must still apply for changes to their licence authority before the Commission, justifying their application in terms of
public service. Applications for licence conditions are still prohibitively slow and expensive. Interviews with several industry figures indicate that the situation particularly hampers the ability of provincial companies to compete with externally-domiciled operators (Landry, Dec 21 1995; Malcolm). Further, they indicated that a crisis point has been reached in 1995.

This is because the province has not harmonized its practice with other jurisdictions. A carrier domiciled elsewhere can enter the province and start up a new interprovincial service without an application for licence authorities. For example, the extremely large American LTL operators such as Yellow Freight Lines, Roadway, Consolidated Freightways of America, Puget Sound Trucking and a number of other U.S. operators are now a growing part of the provincial market. When using American line haul drivers their wage costs are lower than those of Canadian operators. Their fuel costs are also less. Furthermore, these external carriers operate like the new long-distance telephone companies, skimming the profitable inter-provincial long-haul revenues from the industry and not serving as intra-provincial carriers. In this way they avoid dealing with the anachronistically regulated trucking market in British Columbia.

Larger provincially-domiciled hauliers have to operate within the regulations in B.C. except when they haul interprovincially. It is difficult, therefore, for them to amass a large base of operations from which to move out of the provincial market.

In December 1995 the B.C. Trucking Association called for the resignation of the Chairman of the B.C. Motor Carrier Commission. The president of the BCTA, Paul Landry stated in a letter, "The BCTA's board is of the view that the commission's decisions, legal interpretations and policies have significantly and negatively affected the way motor carriers do
business in B.C., and that the situation is intolerable." This is because, "the commission is pulling the industry in a direction that is totally out of step with regulatory directions taken by other North American jurisdictions and with the spirit of the Internal Free Trade Agreement signed by the government in August 1994" (Truck West Dec 1995, 1).

The article further states that delays for hearings average three months and the procedures are time-consuming and very expensive. In an interview with Mr. Landry, he indicated that a small company of less than five trucks had spent over $10,000 ushering a licence application through many months of the process. The operator was ultimately successful but questions whether the relatively minor licence amendment will actually recoup the costs incurred in applying for it.

Because so many other jurisdictions have degregulated the trucking industry, many (including the author) felt that the provincial trucking market had been deregulated. The market has, at least initially acted like it was deregulated, with many new operators and new services appearing shortly after deregulation became a North American phenomenon. Paul Landry stated that the trucking industry in British Columbia acts like a "free market in a regulatory environment". Apparently, once the regulatory hurdles are passed, the companies can operate as they like without further obstruction. An interview with the duty officer at the Motor Carrier Commission offices in Burnaby, however, indicated that the Motor Carrier Commission was prepared to vigorously pursue any violators. These two statements mark the disjuncture in the provincial regulatory practice and indicate the difficult position provincial operators are put in.

Deregulation in B.C. is therefore less than complete. The lack of harmonization with other jurisdictions hampers the provincial industry's
competitiveness with extra-provincial operators. This puts the industry in the ironic position of fighting to free markets and remove the statutory protections that it feels it no longer needs.

In British Columbia the net effects of the various programmes of deregulation meant a period of re-structuring, increased competition, the demise of a number of formerly large firms, and decreasing wages and job conditions for the drivers. Johnston’s Terminals, Millar and Brown, Alltrans Express, Carson’s Freightways, and many others have disappeared. On the other hand, new opportunities were created for (often) new companies who organized their operations in new ways.

c: Deregulation and the Recession

It is difficult to lay all of the cause for the problems the trucking industry has faced solely on deregulation (Glaskowsky 1986, 2; Transmode 1990, 27). For example, the period of transition to a deregulated industry took place during the worst recession in the national and provincial economies since the 1930s. Trucking is a derived-demand industry, existing only to meet the transport needs of shippers (and therefore, the transport and trading needs of a community). If the shippers (and the community) have greatly reduced shipping needs, then no manner of efficiencies and price discount will increase volumes or revenue.

From 1974 to 1987, industry revenue in B.C. increased only 14% in constant dollars. This can be compared to the Canada-wide average of 62% (Transmode 1990, 251). The years 1982 and 1983 marked a 32% decline in revenue in the province (figure 21). Recovery was late and slow too (figure 19). Whilst the national industry achieved 18% growth between 1981 and 1987, the provincial industry increased only 13%.
Figure 2.1 Trucking revenues verses GDP in British Columbia, 1976-1987. Source: Transmode Consultants.
Thus the industry in B.C. lagged behind national trends by a few years. The Recession affected eastern companies earlier than in B.C., and they recovered faster. Also, when the phenomenon hit B.C. it hit with a more severe impact. Growth in the provincial industry was greater than the national average between 1976 and 1981, and then much less from 1981 to 1986. Provincial GDP figures show the same pattern. In the trucking industry, and in the broader economy, the province's position vis a vis the central heartland is like that of a whip in which the wave form travelling down the line increases in amplitude as a function of time or distance. In this way it exhibits a classical heartland-hinterland relationship constituted out of the structures of the staples economy and the constraints of distance and time.

d: The provincial trucking industry today

For the industry in British Columbia, the balance sheet is mixed. The multi-regional nature of the province's markets has allowed medium size ($1-5 million annual revenues) companies to find market niches and prosper (Transmode 1990, 221). The geographically fractured pattern of pre-existing license conditions (with their concomitant partial networks of facilities) and the costs of building and maintaining a complete network of new terminals and branch operations militated against the entry of new players into the LTL market, except for large operations domiciled elsewhere, which were previously unseen in the province.

In British Columbia, operating ratios, always low, have been reduced still further by deregulation. Recovery from the depression was late and slow. It was not until 1987 that growth rates again began to
Figure 22. National and provincial fleet composition by firm size
approach that of the surrounding economy, although at the turn of the next
decade, growth in B.C. and in the provincial trucking industry surged ahead
of the rest of the country (Transmode 1990, 211).

In 1992, the operating ratio of the provincial truck industry was .973
(StatsCan 1992, 27). That of 1991 was similar. Overall profits during the
late eighties and early nineties were in the range of 2.4 - 3.2 percent,
although some sectors, such as the forest products sector achieved
operating ratios of 0.94 (Transmode 1990, 27).

In 1991, Truck Load carriers had better operating ratios than LTL
carriers (0.96 and 0.98) (StatsCan 1992, 18). Truck Load carriers need less
expensive fixed assets and their work is less labour-intensive, thus their
costs are marginally less. They have been able to turn this into better
profits than those earned by the industry in general and by most other
trucking sectors.

The industry in British Columbia had operating expenses which
consumed approximately $83.0 million of the total $85.2 million revenues
earned, resulting in an overall operating ratio of 0.973 in 1991 (StatsCan,
27). This compares to national figures of $8.29 billion expenses against
$8.52 billion in revenue. The provincial industry generates approximately
11% of the total national operating revenues. The provincial GDP is
approximately the same percentage of the national GDP (StatsCan 1992,
24).

In 1992, 224 firms in the for-hire sector of the industry in B.C.
employed 5,626 persons. The fleet consists of over 10,500 licensed
vehicles, including 2,122 road tractors and 6,520 semi-trailers (Stats Can
1992, 27).
By the end of the eighties, the structure of the industry in the province differed from the rest of Canada in several important ways. There has been a rapid increase in the number of small carriers, which grew from 30% of the provincial industry in 1981 to 41% in 1986, as opposed to figures of 28% to 24% nationally (figure 23). This was accompanied by a steady decline in carrier size. The smaller sized companies were able to respond better to changing market conditions. The increase in lumber transport, for example, has largely taken place in small and medium sized firms.

**e: courier service**

One of the new trucking services that has grown to prominence since the early 1980s is courier service. Courier companies have captured a large part of the parcel freight market. The Private Motor Truck council of Canada estimates courier revenues in 1993 to be $2.3 billion across Canada (TT Oct 1995, 39). Couriers regularly carry shipments of up to 75 pounds per piece with a large or unlimited number of pieces per shipment. They have taken a large part of the lucrative small shipment market from the traditional trucking companies, out-competing them on price and service.

Courier service is an example of the way the industry has responded to changing market conditions. As industrial producer services such as just-in-time production become established in the service sectors (especially in retail sales and in industrial hardware and repair) so couriers with their overnight delivery services and low shipment rates grew.

Couriers employ delivery drivers operating small trucks and vans of up to 2-ton capacity, often owner-operators. These cost less per hour than a heavy-duty truck and driver. If both sizes of vehicles were operated at their
maximum capacity all the time, then the larger units would be more efficient. But pick up and delivery vehicles seldom are fully loaded, except when they leave the terminal. Thus, much of the capacity of a 5-ton truck remains unused. A fleet of smaller vans yields lower unit delivery and pick-up costs than a smaller fleet of big trucks of similar total capacity. Additionally, courier drivers are paid less than truck drivers, partly because the work does not require a special license. Some courier companies encouraged their employees to join unions which were less militant than the Teamsters. As a result, courier employees generally earn considerably less per hour than their truck driving counterparts.

In 1978, Loomis Armoured Car Ltd. began a courier service moving administrative and paper bank materials around the province. Their licence was restricted to these commodities plus medical and laboratory materials and their conditions of licence limited individual shipment weights to 100 pounds (MCC 1980, Q9). However, they serviced every place in British Columbia where there was a bank.

Building from this, Loomis Courier added new services to their destinations until they could offer a complete package of services from within a single courier company. In 1979 Loomis purchased the Trans Canada Parcel Service. This company had a general freight license which allowed them to carry small parcel shipments throughout the province (MCC 1980, Q10). In the eighties they acquired further licences allowing shipments of much larger aggregate size as long as the individual pieces weighed less than 70 pounds.

By 1981, they had in place a ground line-haul system that moved freight out of Vancouver to terminals in most major towns in B.C. This system was constructed to ship tractor-trailer loads of mixed freight over
the main highways at high speed. Goods picked up in town and delivered to the terminal by 5:00 pm were on their way to the Interior in trailers by 8:00 pm., pushing the overnight delivery thresholds out to the northernmost end of Vancouver Island, and to the Kootenay and the Peace River areas.

Many shipments that had previously gone with the trucking firms now began to move via "courier". All freight enjoyed the overnight delivery service, regardless of whether it was bank material or auto parts. For example, beginning in 1983, B.C. Bearing Supply Ltd. shipped large aggregate shipments of bearings (10-40 pieces each weighing up to 75 lbs.) daily to all of it's branches using Lopmis Courier. As long as the pieces were small enough to be handled manually (less than 75 pounds) and packaged so that they could move on automated roller and conveyor systems, they became 'courier' materials. Discounts of up to sixty percent made the larger shipments affordable.

Additionally, couriers offered customers a one pound minimum-weight limit. Thus, 40 pounds was charged as 40 pounds, not as one hundred. Prices were as much as 60 per cent less than trucking tariffs, at least for smaller shipments.

Courier tariffs were structured in a way that penalized high-weight shipments. Where unit rate discounts came with increased weight in the trucking industry, courier unit rates went up prohibitively at weights over 500 pounds. Individual pieces of high weight are expensive to handle, requiring increased labour or expensive handling devices. In the rush to consolidate market share the couriers offered special discounted tariffs to entice shippers of large aggregate parcel shipments to use their services.

The net result of this new service was a decline in trucking company
revenues, and this contributed to the troubles they experienced in the 1980s.

Loomis Courier is owned by Mayne Nickless, a multi-national transport company based in Australia, and Gelco, the second-largest courier in Canada in the 1980s was owned by a multi-national holding company based in Chicago.

International holding companies such as Mayne-Nickless and TNT Pty. Ltd. of Australia, and Gelco International and the Laidlaw Corporations of the United States have purchased their way into the Canadian market, bringing new ideas from their experiences elsewhere.

In 1986, Gelco left the Canadian trucking market, selling Gelco Express to Air Canada. They later sold the company to Purolater Courier (owned by GE Capital Corp of the United States). Purolater has recently been purchased by Canada Post Corporation who operate it as a separate division from the Post Office's own courier -- Priority Post Courier (Landry, Dec. 21, 1995). In the case of Gelco Express, for whom the author worked in 1987 and 1988, each sale to a new corporate master involved consolidation with that corporation's other courier holdings. Thus Gelco and Air Canada's Air Freight Express divisions were joined. Purolater later combined their operations with those of Gelco to form the largest courier in Canada. Recent speculation in industry journals include the concern that Canada Post will combine its Purolater operations with those of its own courier division to achieve a dominant position in the industry, subsidizing its growth plans with postal revenue (TT Mar 1995, 19). As Purolater employees are mostly owner operators, there is a strong possibility that the unionized employees of Priority Post Courier will eventually be forced to become owner operators as well.
During the late 1970s and the first half of the 1980s, the couriers saw the size of their operations and revenues grow spectacularly, doubling, tripling, and even quadrupling their volumes annually. At the same time, they were engaged in a massive program of expansion with large capital expenses for fleets and terminal buildings. Thus, profits were relatively slim. The expectation in the industry was that once the markets stabilized, market share could be used to increase profits. But the new ease of entry and the resulting increased competition meant that increased efficiencies resulted in lower tariffs rather than increased return to shareholders once market-share was established. For example, tariffs at Loomis Courier in 1982 were higher than prices offered in 1992, not taking into account the effects of inflation. Although the couriers are winners in the market place, shouldering many older trucking companies out of business, their dominance seems like less of a victory when considered in terms of profitability.

f: The restructuring of labour practices

There has been a substantial change in labour practises since the early 1980s. Two phenomena are particularly apparent: the switch to owner-operators and a retreat from sectorial "Master Agreements" in unionized companies. Workers in the trucking industry now earn less than workers in other transportation sectors and one consequence of this has been a shortage of skilled employees. The uncertainty and constant push for improved operational efficiency has affect transportation management in a similar way.

The use of owner-operators has increased enormously, replacing company drivers and company trucks. An owner-operator contracts his or her own tractor and services to an established trucking company.
Generally, an owner-operator will drive a truck painted in the fleet colours of his or her employer. They operate under contract as employees of the larger firm, carrying that firm’s freight rather than their own.

The use of owner-operators is not a new phenomenon. The first truckers generally owned their own trucks, working as drivers, loaders, mechanics and marketers. It was not until the 1960s that the industry became heavily unionized when the Teamsters moved into the provincial industry (OTA 1977, 89).

The large, vertically-integrated firms were easy targets and a series of tough strikes in the nineteen sixties and seventies led to large wage increases and improved working conditions. Even then, owner-operators were common in the line-haul sector of the industry. They were included in Teamster collective agreements, being paid by the mile.

The increased competition and decreased profits, driven by the recession and high interest rates in the early 1980s pushed the change from company drivers to owner-operators. Previously, it been enough to improve operating efficiencies (volume efficiencies, power-unit efficiencies, round-the-clock utilization of equipment) in order to generate improved profits. As expenses rose during the period of high inflation in the early 1980s, companies had to choose between investing in trucks or in the new business management technologies such as computers. Forcing drivers to purchase their own vehicles allowed the companies to direct their capital into business systems which offered the potential of making their operations more efficient. It also gave workers a financial stake in the growth of a company’s market share, especially when it came to customer service. Most importantly, it allowed companies a way out of the rigid provisions of
job description and seniority that had become established in contemporary collective agreements.

The companies took advantage of the political platforms of provincial and federal governments in the 1980s to opt out of their commitments to their workers. Some companies were able to decertify their bargaining unit employees. Others simply closed shop and started new non-union companies employing only owner operators.

Provincial owner-operator statistics are difficult to find. Nationally, however, in 1991 there were 34,712 owner-operators running 72,455 straight trucks, tractors and trailers in Canada (StatsCan 1992, 21). There were 93,308 persons employed in the for-hire trucking industry, inclusive of owner-operators (StatsCan 1992, 10). Owner-operators therefore make up a significant proportion of trucking employees.

Nationally, owner-operators earned $2 billion, or approximately a quarter of the $8.3 billion transportation costs of reporting carriers in 1991. The average revenue per owner-operator was $121,000, of which, $86,000 was consumed by expenses. Sixty percent of owner-operators worked for for-hire carriers, 29% for private fleets, and 11% worked for both (StatsCan 1992, 57).

The rise in the employment of owner-operators parallels the decline in union membership in the industry. Owner-operators are cheaper than company drivers, even if the rates are similar, because they save the company the capital costs during times when capital is difficult or expensive to find (TT May 1995, 17). The growth of smaller carriers, who tend to use more owner-operators, put pressure on the larger union carriers who operated their own equipment, progressively forcing them to adopt a policy of replacing company drivers with owner-operators (Transmode 1990, 256).
In the 1960s and 1970s, unionized carriers negotiated Master Agreements within each sector of the industry. This produced what were called Master Freight Agreements, which would govern all companies working in a single sector within a single region. Agreements were negotiated in the construction sector, the lumber-haul sector, the log-haul sector and many others. This created a level playing field between companies in terms of employment costs. A company's competitive edge came about not due to lower labour costs, but rather through increases in productivity within its systems.

These Master Agreements were abandoned in the 1980s and each company began to negotiate directly with the union. When negotiations were conducted for sectorial Master Agreements, the result was often that recalcitrant firms were pressured by others who were willing to sign a new collective agreement. Under the new system, each firm continued to negotiate until it got an agreement it believed it could live with. The result has been attempts to play one company's union employees off against another's and the result has been lower wage increases.

Another feature of the industry during the years of low profits has been the large turnover of transportation executives. This has been the author's own experience and was confirmed in conversation with the president of the British Columbia Trucking Association. This phenomenon has resulted in a constant re-evaluation of operating practices and tinkering with the organization of the firms. Profit levels have been so chronically low that one new management scheme is piled atop another, rendering each ineffective as the crisis prevents their effective implementation.

Turnover in management and turnover in workers brings questions of the long-term viability of some of these changes. Employees are a trucking
company's greatest asset in terms of customer service. They also can be its greatest weakness. Employee turnover is often accompanied by poor service during the transition period -- for example, an owner-operator facing bankruptcy may treat customers poorly. Unless the new 'independent contractors' can earn enough money to offset their liabilities, the move to owner-operators provides short-term gain but raises questions about the long-term viability of the system.

In terms of company drivers, the industry in British Columbia is facing a manpower crisis. In an interview, Paul Landry admitted that finding and retaining good employees is currently a serious problem for the industry (Dec 21 1995). Many former drivers have left the industry due to declining real wages or a reluctance to become an owner-operator. New drivers do not have the experience necessary to perform the work safely and efficiently.

Truck drivers no longer "drive the big rigs and earn the big bucks". In 1991, Statistics Canada reported that of the four main transportation sectors (truck, rail, maritime and air), truck drivers were the most poorly compensated. Trucking employees earned an average of $38,000 per year while rail employees earned $46,000, marine transport workers earned $46,000, and airline employees $44,000 per year (StatsCan 1992, 11). Trucking workers are in the lowest paid sector in transportation. This has led to a situation where, by 1995 there was a shortage of drivers in the industry and a recognition by the BCTA that something must be done (Landry, Dec 21 1995).
The author's experience reflects this. I left a Teamster job in Vancouver in 1976 earning $11.99 per hour. Moving back to Vancouver in 1988, I found another Teamster job paying $11.99 per hour. Thus, over 12 years, the rate had remained constant, despite the enormous increase in the cost of living during that time.

The British Columbia Trucking Association ascribes this problem to the low rate of return at current shipping rates. In an interview, the president stated that they could not pay higher wages and stay in business with revenues as they are now. Only by raising rates will they be able to raise wages and attract better quality employees. Implicit in Landry's statement is the fact that society will have to pay more for goods transportation (Dec. 21, 1995).

g: Deregulation and highway safety

Another important public issue connected with deregulation is highway safety. Many owner-operators do not have adequate resources to maintain their equipment properly, especially given the increasing technological complexity of the equipment. A similar phenomenon also affects smaller companies.

Glashowsky reports that in the U.S., "trucks placed out of service...for serious defects increased from 23 percent to 41 percent at a national truck inspection in September, 1985," and that "truck accident reports to the Bureau of Motor Carrier Safety increased 18 percent in 1984" (the year after passage of deregulatory legislation) (1986, 32).

More disturbing yet is the fact that "the percentage of motor carriers with unsatisfactory safety ratings is highest among those that have recently received operating authority from the Interstate Commerce Commission,"
and "unsatisfactory safety ratings are more prevalent among motor carriers with smaller profit margins" (Glaskowsky 1986, 32).

Comparable figures are not available for B.C., but the evidence suggests that the situation is essentially the same. Recent incidents in the province, including fatal accidents caused by run-away trucks in Horseshoe Bay, in Kamloops, and on the Kicking Horse Pass, and nationally (fatal accidents from lost truck wheels on the freeways of Ontario) have recently focussed public attention on truck safety (TT May 1995, 82). Governments have pronounced intolerance of such safety breaches but have done little to recognize the financial pressure on owner-operators and cash-strapped smaller companies which results in poor maintenance. Improvement is likely with more frequent and thorough roadside safety inspections, but until the conditions that produce the problems change, poor and unsafe maintenance will always be a problem for the industry. Deregulation has not helped the make provincial highways more safe.

h: Deregulation, restructuring and the provincial economy

What was the result of deregulation for the provincial economy? In the short term, it can only be said to have been beneficial. One indication is the fact that in B.C., unit-revenues for both intraprovincial and interprovincial freight have declined significantly. Intraprovincially, unit-revenues have decreased 51% since 1980, and interprovincial unit-revenues have declined 26% since 1982 (Transmode 1990, 255). Nationally, unit-revenue figures also declined, but not as much as in British Columbia (Figure 23). Over the 13 years from 1974 to 1987, the amount of freight carried in Canada has increased by 105%, while gross revenues have increased by 62% (Transmode 1990, ii). Shippers are indeed paying less for
Figure 23. Unit Revenues in British Columbia
Source: Transmode Consultants 1990.
truck transportation than it did before the restructuring. By this measure, deregulation is a success.

But the regional variation in access to trucking services still exists. Under free-market conditions, companies tend to focus on high-volume routes where they can achieve economies of scale, maximizing their equipment use and return. No longer forced to serve the "public good", they do not have to subsidize service to smaller centres from their other revenues. As a result, prices rise and/or service levels decline in these places.

For example, in the five years before declaring bankruptcy in 1989, Johnstons/Public Freightways reduced service in most of its license areas and concentrated on its operations between Vancouver and Vancouver Island. It then reduced even those services, eliminating terminals in Duncan, Port Alberni and Courtenay, consolidating all dispatch services in Vancouver using a long-distance telephone network and serving smaller communities thrice-weekly, rather than daily. This was done in an attempt to reduce costs and focus on core markets in response to the Recession and to compete with new services such as couriers (Malcolm). Ultimately, this strategy was unsuccessful.

In B.C., the forest industry has utilized truck transport to profit from the North American Free Trade Agreement. A major shift from rail to truck has taken place in the last two decades. In 1981, forest products made up 20% of the industry's revenue, but by 1986 it had increased to 34 percent (Transmode 1990, 254). British Columbia's carriers hauled 4.4 million

*However, the overall competitiveness of the industry means that innovative new services (such as courier services) have characteristically emerged to replace older unprofitable services.
tonnes of ‘Crude Wood Materials’ in 1991, generating revenues of approximately $61.8 million (Transmode 1990, 59). Deregulation, combined with The North American Free Trade Agreement (and the consequent rise in north-south shipments) offered new opportunities for truck transport in the movement of lumber to markets. The speed and flexibility of trucks has made possible north-south interconnections which allow a large number of smaller mills to flourish, each concentrating on its area of natural advantage, whether producing semi-processed or re-sawn lumber. Producers entered the American market directly, making alliances with American producers who already had a presence in the U.S. market.

Currently, forest products account for 50% of revenues for small-carriers in B.C., 30 percent for medium-sized carriers, and 20 percent for large carriers. As the forest products market grew, so small truck-load carriers (which require the smallest start-up costs) have grown at the expense of the larger operators (Transmode 1990, 254).

In B.C., the restructured trucking industry has certainly benefitted large volume shippers, who have gained lower rates, more unified service provision, and increasingly specialized services. At the same time, medium-sized provincial firms offer regional producers the flexibility of transport services designed to directly match their requirements. Smaller shippers and receivers can take advantage of the new services, such as courier and parcel services, which allow them to move goods from a distributor as needed rather than stockpile them at their operations, but they do not receive the large tariff discounts (as much as 60 percent) offered to large shippers.
CHAPTER V
CONCLUSION

British Columbia now has a road transport infrastructure that links most regions in a manner that obscures their relative distances from Vancouver. The products of the regions move to and through the regional centres, down the transportation network to the province's economic and cultural centre - Vancouver. From there they are exported across the world. The flow also works in reverse. The products of the world enter Vancouver and are then distributed throughout the network, passing through the regional centres on their journey to the point of consumption.

The area of the province integrated into this system has grown larger in the last decade. Within the area bounded by overnight delivery service, all places within that network are placed within a single, relatively homogenized market.

By the 1990s, city tastes are as much a part of the landscape of consumption in Prince George as in Coquitlam or Surrey. Franchise restaurants, big-city grocers, and fashion stores in shopping malls are ubiquitous signs of a homogeneous culture of consumption throughout the province as retailers realize the potential for growth in regional markets.

As places are integrated within the area of overnight delivery from Vancouver (a zone with a radius of approximately 800 kilometers from the city) their relative distances from the city are effaced. Overnight delivery gives all enterprises within this zone relatively equal access to the goods, services and ideas of Vancouver. Regional differences (which do still exist)
are overlain with consumption and production choices which emanate from the city.

Trucks carry more than material goods. Along with the goods they carry come ideas about lifestyle, values of appropriate consumption, and an increase in the range of activities available to people who live within a culture and economy supported by trucking services. Trucks function to connect region to region and enable the integration of regional activities within a much larger economy and culture. The range of choices available to residents of small-town British Columbia would be much poorer without the integrating influence of a strong trucking industry that is reliable, affordable and expeditious.

Returning once again to Phil Gagliardi's comments on "civilization", progress and flush toilets, one cannot separate this regional integration from the creation of an integrated highway network and the provision of universal road transport. The process of 'modernizing' British Columbia's economy would have taken a vastly different trajectory had not truck transport developed as it did. The growth of the provincial economy in the last decade has been dependent upon lowered unit costs and improved service standards within the industry.

The story of the trucking industry is a chaotic one which features a myriad of innovative responses to the many barriers to efficient, reliable and profitable operation. The constraints have been many. Difficult topology, severe climates, long distances, poor roads, equipment lacking reliability and power, shortage of capital, ever-increasing operating expenses and undeveloped markets have all served restrict the industry's ability to provide profitable and reliable service. It has responded with improved equipment of increased power and capacity and reliability, better systems of management,
innovative ways of raising capital and larger and larger corporate operations in order to improve economies of scale to the point where the service is economically viable.

Government assistance in terms of highway construction and in regulating markets was both a recognition of the difficulty of the task of building a viable trucking industry and of the value that industry to the development of the provincial economy. Gagliardi's comments recognize that the integration brought about by road transport operates in the cultural realm, as well as the economic. He does not mention jobs or mega-project industrial developments, although the roads created under his remit certainly served to support the creation of jobs in the peripheries. Rather, he talks about extending equal participation in a provincial culture to all residents, no matter how far from Vancouver. They too can replace their outhouses with flush toilets, their boilers with washing machines and their country shacks with "complete homes".

And thus this project of integrating regional economies within a provincial economy and connecting the whole to even larger national and international economies represents the accomplishment of Gagliardi's project, pushing "the Province past the Pattullo Bridge."
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GLOSSARY OF TRUCKING TERMS

bituminous surface  Road surfacing consisting of aggregate materials held in a heavy tar matrix. "Blacktop" or "asphalt".

bogie  A grouping of axles. Usually the back two or three axles on a tractor or trailer.

break-bulk  The the sorting of an aggregate load of smaller shipments for delivery to their ultimate destination.

dolly  Freight moving equipment with two wheels and an upright frame. Used to move individual parcels or a stack of boxes. Also called "wheeler" or "hand-trucks".

double overdrive  A type of transmission featuring a final gear ratio higher than 1:1. This allows high speeds to be reached.

duals  A wheel arrangement with two tires beside each other.

flat deck  A truck or trailer body consisting of a flat deck with no sides, top or back. Generally used to carry goods which are too large to be loading through the back door of a van trailer and which are not vulnerable to exposure to the elements.

hand bomb  To sort, load, or unload freight by hand.

haywire  A quick repair designed to allow the equipment to be returned to a repair facility. Also used to describe a general way of operating which characteristically involves poor maintenance.

Jake brake  A "Jacobs Engine Brake." A proprietary technology that reverses the operation of the valves in a diesel engine, turning the engine into a compressor. This resistance is used to slow the truck in conjunction with the regular wheel brakes.

jeep dolly  A bogie with a fifth-wheel and drawbar. Used to connect the front of one semi-trailer to the back of another, especially in A-trains.

Line haul.  The movement of loads of freight between two terminals where the driver does not load or unload the freight.

lug  To run an engine under a load where it does not have sufficient power to accelerate. This is extremely damaging for the engine. Lugging can be avoided by shifting to a lower gear.

P & D  Pick-up and delivery operations. Usually performed by smaller straight trucks. P & D drivers generally deliver in the morning and pickup in the afternoon. There loads are sorted and consolidated into line haul trailers.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>paving</td>
<td>The hard surfacing of a road. Can be asphalt or well-packed gravel.</td>
</tr>
<tr>
<td>reefer</td>
<td>A refrigerated van body. Often used for hauling produce or meat.</td>
</tr>
<tr>
<td>tandem</td>
<td>A bogie consisting of two axles. Also a truck with a two-axle bogie.</td>
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<tr>
<td>tridem</td>
<td>A bogie consisting of three axles. also a truck with a three axle bogie.</td>
</tr>
<tr>
<td>van</td>
<td>An enclosed truck or trailer body, usually loaded through a swinging or roll-up door at the back.</td>
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<tr>
<td>way freight</td>
<td>Freight in transit that is listed on a waybill</td>
</tr>
<tr>
<td>waybill</td>
<td>A standard shipping document describing the items shipped, their shipper, consignee, and other identifying information. A waybill also lists the carriers responsibilities and liabilities.</td>
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APPENDICES