

Industrial Development of Lethbridge: A Geographer's Interpretation

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This paper was originally written as a field trip guide for the 1999 Meeting of the Canadian Association of Geographers. This revision is written for the Economic Development Department of the City of Lethbridge. The paper uses mainly secondary sources and field observation to provide the broad geographic and historical background necessary to understand Lethbridge's contemporary industrial economy. Corrections, questions and suggestions for revision are welcome; the author may be reached at maclachlan@uleth.ca. The assistance of Greg Ellis Archivist, Galt Museum and Kel Hansen, City of Lethbridge is gratefully acknowledged.

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The Bison Economy

The earliest economic activity in the Lethbridge area can be traced back at least 11,500 years, the earliest date of stone artifacts found in Southern Alberta. By 5000 BC hunting and gathering cultures were killing and butchering bison at cliff sites in the foothills such as the Head-Smashed-In Buffalo Jump, some 70 kilometers to the west of the present-day Lethbridge. The absence of large concentrations of stone implements at any single location in Southern Alberta suggests a nomadic Aboriginal lifestyle. From time to time, there is no question that bands of indigenous people used the Oldman River Valley as a sheltered and well watered camp site in the summer months. Though not producing at an industrial scale, economic activities would have included butchering of bison and other game, preparation of pemmican, processing bison hides into tipi skins and clothing and the manufacture of bone tools. Doubtless the indigenous people were aware of the combustibility of the coal in visible outcrops along the valley sides, indeed the area was first called *Sokohotoki* (place of the black rocks). But taboos were associated with its use as fuel, perhaps due to the toxicity of the carbon monoxide produced by burning coal in poorly ventilated tipis or perhaps due to its subterranean origins and association with the spirit world. Local hunting cultures depended on fuel from willow and poplar gathered in the river bottoms and coulees and dried-out bison dung found on the open prairie.

At the time of early European contact, the Blackfoot had come to local dominance in Southern Alberta. By the seventeenth century, the Blackfoot were trading for the horses and firearms introduced by Europeans and the growing importance of these material possessions was part of the impetus for increased intertribal hostility in the period leading up to European contact. The Blackfoot population in Southern Alberta was decimated by smallpox epidemics in 1837 and again in 1869. In the general chaos created by disease and the imposition of European trade goods on the indigenous economy, a Cree war party attacked a Blood Indian camp on the west side of the Oldman River in 1970. A last minute counterattack by a band of Peigan saved the encampment from annihilation and approximately three hundred of the Cree were killed. This was to be the last intertribal Indian battle in Canada, and while the Blackfoot won the battle, their regional dominance would soon be eclipsed by newcomers from the south.

The Whiskey Trade and Bison Hides for Machinery Belts

With the Blackfoot weakened by disease, American “whiskey traders” arrived from the Missouri watershed to exchange an alcohol-based concoction (it was whiskey in name only) for bison hides. The hides were hauled some 300 kilometers from Southern Alberta down to Fort Benton in covered wagons in trains of three wagons each by “bull teams” of up to eight oxen. From Fort Benton at the head of navigation, the hides were then shipped eastward along the Missouri and Mississippi systems to the edge of the industrializing Midwest. Bison hides were thicker than domestic cattle hide and were ideally suited to the manufacture of the broad leather machine belts which were essential to transfer torque from water and steam powered shafts to mechanical machinery at the height of the Industrial revolution.

The whiskey trading post at the confluence of the St Mary and Belly (now Oldman) Rivers was but one of over 40 such forts in Canada’s Prairie West, but as “Fort Whoop-Up” it became the most notorious. With the arrival of the North-West Mounted Police (NWMP) in 1874, the imposition of Treaty Number 7 on the native people in 1877, and the extirpation of the bison on Alberta’s southern plains, the north-south trade in bison hides gradually came to an end. The last bull train passed through Lethbridge on its way to Fort Benton in the spring of 1885, and the local economy shifted from the exchange of whiskey for bison hides to coal mining.

Coal Mining

Local exposures of coal were clearly visible to the whiskey traders where the Oldman River had cut deeply into the Oldman formation of the Cretaceous and Tertiary eras. In 1874 the first coal mine of any size in Southern Alberta was dug out of the side of Indian Battle Coulee by Nicholas Sheran, an Irish adventurer and

sometime whaler, Civil War soldier, and whiskey trader. Located just north of the present-day Whoop-Up Drive Bridge on the west side of the Oldman River, the mine site became known as Coalbanks. Most of this coal was sold to the NWMP in Fort Macleod and to traders at Fort Benton. Sheran's mine site was visited by Elliott T. Galt in 1879 who recognized its possibilities, especially when the decision was made to route the Canadian Pacific Railway's transcontinental line through Medicine Hat and Calgary.

Elliott Galt was the son of Alexander Tilloch Galt, one of the most financially astute and successful of Canada's "Fathers of Confederation." The elder Galt had been instrumental in financing the settlement of Quebec's Eastern Townships and was President of the St Lawrence and Atlantic Railroad (joining Montreal to Portland, Maine). He served as Canada's first Minister of Finance and later was Canada's High Commissioner in London. With British sources of capital (one of the investors was William Lethbridge) and land grants carved out of the former Rupert's Land, Alexander Galt incorporated the North West Coal and Navigation Company in 1882 to put coal mining on a commercial footing.

William Stafford, a coal mining engineer from Nova Scotia, was brought in to prospect for coal and his survey revealed several useable coal seams in different regions of Southern Alberta. Several other contending coal deposits had better access to the CPR main line while Coalbanks (which later became Lethbridge) lay a daunting 175 kilometers from Medicine Hat. But Coalbanks was selected because its coal was of superior quality and was cheaper to extract. The site with superior hydrocarbon resources won out over locations with superior situations relative to the CPR.

A drift mine (with horizontal tunnels) was opened in the river bottom late in 1882 with labour supplied by 15 Cape Breton coal miners. Plans to ship the coal to Medicine Hat by paddlewheel steamer via the Oldman and South Saskatchewan Rivers were thwarted by low water in the summer of 1883. By 1884 Alexander Galt had managed to secure the charter, land grants and capital necessary to build a narrow gauge railway to Dunmore on the CPR (just east of Medicine Hat). The rail line to Dunmore was completed late in 1885 and in 1890 a second narrow gauge line was completed to the U.S. border to link the mine to the lead smelters of Montana. Having shifted its emphasis from steamboats to railways, the enterprise was restructured as the Alberta Railway and Coal Company (AR&CCo.).

With the completion of the railway coal production began in earnest. A shaft was sunk from the prairie level down nearly 300 feet down to join up with the seams

that had first been exploited from a horizontal drift at the valley floor. With the mine's head-works and the railway terminus above the river valley, the drift mines on the river bottom were closed in 1893 and the main settlement shifted up to prairie level, creating a vibrant little mining town overlooking the river valley. Coalbanks, the execrable mining camp in the valley bottom, was gradually abandoned.

The town site was named Lethbridge in 1885 and incorporated in 1891, a move which was supported by Elliott Galt on the proviso that the town move immediately to exempt all the assets of the AR&CCo from municipal taxation for a period of twenty years. The narrow gauge line was leased to the CPR and expanded to standard gauge in 1893, opening Lethbridge to CPR trains from Medicine Hat. By 1896 Lethbridge had become the largest coal producer in the North-West Territories. But the depressed conditions of the late 1880s and early 1890s took their toll and the AR&CCo paid few dividends to its British investors. With the election of the new Liberal government of Sir Wilfrid Laurier in 1896, the CPR was given generous land grants and lucrative grain freight rates as incentives to extend its rail line from southern Alberta through the Crowsnest Pass, joining Lethbridge to the rich mineral resources of southern British Columbia and on to the coast. The Crowsnest Pass extension was completed in 1897, putting Lethbridge squarely on Canada's second western rail link from the western plains to the Pacific.

Lethbridge's origins as a coal producer owed everything to the entrepreneurial expertise and acumen of financiers originating in Eastern Canada and the United Kingdom, the fortuitous routing of the CPR through Southern Alberta, remarkably generous land grants from the federal government and tax holidays from the municipal government.

The Ranching Economy

Due to the availability of homesteads on land with greater rainfall in the Park Belt of central Alberta, there was little interest in crop production in the Lethbridge area until the turn of the century. The period spanning the 1880s and 1890s was Alberta's golden age of ranching and much of the land around Lethbridge was leased for as little as a penny an acre as grazing land. But ranching had little impression on Lethbridge. For one thing, there was greater rainfall in the foothills grasslands to the north-west where most of the famous ranches were established. The CPR was quite willing to carry live cattle in purpose-built livestock cars and it built trackside corrals and loading chutes for this purpose. The AR&CCo was in the business of shipping coal and had little interest in fostering ranching. Second, Lethbridge lay closer to competing interests in Montana where I.G. Baker was producing cattle along the Missouri and trailing animals into Canada for sale as food for the Indian

Reserves and the NWMP. Virtually all supply contracts to provision the NWMP and Canadian Indian Reserves in the Treaty 7 region flowed to Montana suppliers between 1874 and 1883. Finally, nineteenth century cattle ranching was land intensive but labour extensive; there were so few ranchers that they had less impact than coal mining. There would not be a cattle slaughter plant of industrial scale in Lethbridge until 1960. Calgary was the centre of the cattle industry, a role it would keep to the present day. By the turn of the century Lethbridge was on its way to becoming Canada's Irrigation Capital. So much labour and capital was invested in irrigated land that it was far too valuable to be used for pasture.

Irrigation Agriculture

Lethbridge is located in the mixed grass vegetation zone of Palliser's Triangle, a triangular region with its base running along the 49th parallel from 114 degrees west (the border of British Columbia and Alberta) to 100 degrees West (south of Brandon, Manitoba) and its apex at 52 degrees North (just southeast of Saskatoon). The region was assessed by John Palliser, a British explorer and adventurer in the late 1850s who concluded that the vast region had no potential for permanent agricultural settlement as there was insufficient rainfall for agriculture to compete with the better watered regions to the north. Palliser failed to discern the region's enormous irrigation potential.

The origins of irrigation agriculture in Southern Alberta were a complex mixture of technology transfer from Utah to Alberta, Mormon expansionism from its hearth in Salt Lake City and generous land grants from the federal government. The excavation of irrigation canals began in 1898 and by 1900, some 95 miles of canals linked the St Mary River near the international border with Lethbridge. A rail line joined Lethbridge with Cardston which was fast becoming the centre of Alberta's Mormon community. Irrigated land was ideal for the production of sugar beets which was further encouraged by the construction of sugar refineries in Raymond, Picture Butte and later Taber. By the turn of the century the growing acreage devoted to sugar beets provided the impetus for the immigration of Japanese agricultural labourers for the manual cultivation that sugar beets required.

The completion of the St Mary River Dam in 1951, and the controversial Oldman River Dam in 1992, prompted further expansion of the land under irrigation. Until the 1970s, most irrigation was based on excavated reservoirs and channels, gravity flow, and distribution to plants by simply flooding fields on a periodic basis. Technological change and massive investments by both the public and private sectors in hydraulic infrastructure expanded the land under irrigation in the 1970s. Many of the irrigation districts installed pressurized distribution systems between

1973 and 1988 using buried pipes in lieu of ditches, increasing the land area with access to irrigation water. Individual farmers took advantage of the new water supply and invested in both side-roll and centre pivot irrigation apparatus to improve the quantity and regularity of water delivery. Between 1965 and 1985 the land area under irrigation in Alberta doubled, reaching 1.1 million acres in 1995. In 1998, forage crops (led by alfalfa) accounted for 43 percent of Alberta's irrigated land while cereal grains (led by barley) accounted for a further 34 percent. While enhanced irrigation increased Southern Alberta's capacity to produce forage and feed grain, it also made good quality water available to build feedlots in areas otherwise too dry to sustain the needs of growing cattle.

Irrigation agriculture became significant to the industrial development of Lethbridge for three reasons:

1. Irrigation agriculture supports a higher rural farm settlement density than would otherwise have been the case. Surrounding rural farm consumers contribute significant spending power to the Lethbridge trading area, supporting a retail trade and service sector out of all proportion to the size of the city itself.
2. Irrigation agriculture creates a demand for specialized technical equipment such as pumps, hoses, and irrigation pipe and engineering services which are a significant component in the city's industrial structure.
3. Irrigation agriculture produces specialty crops such as sugar beets, potatoes and beans (in rotation with cereal grains and forage) which are processed in Lethbridge and surrounding communities.

Railway Yards and Grain Elevators

In 1904 the Town of Lethbridge extended its exemption on taxation (first offered to the AR&CCo in 1891) for a further twenty years and offered 200,000 gallons of free water per day to the CPR. This was sufficient incentive for the CPR to shift its divisional point from Fort Macleod to Lethbridge; to build a passenger station, railway yards, locomotive shops and a round house in Lethbridge; and to replace the byzantine system of switchbacks carrying the Crowsnest Pass Line across the Oldman River Valley with the high level bridge which was completed in 1909, the longest and highest railway trestle in the world. The AR&CCo from which the CPR had leased its trackage for twenty years was finally sold to the CPR in 1912. The railway yards were shifted out of the downtown area in the middle 1980s, removing a noxious and dangerous land use from the inner city and releasing hundreds of acres for commercial and residential redevelopment, reinforcing the vitality and status of the downtown area.

The presence of the railway divisional point provided encouragement for

wheat storage and processing beyond the usual grain elevators that are the hallmark of every prairie community. Ellison Milling opened its flour mill at the point where 13th Street crossed the railway line in 1907 where it remains to the present day though it is now a subsidiary of Parrish and Heimbecker. In the “Dirty Thirties,” one of the few causes for optimism in Lethbridge was the opening of the Canadian Grain Commission’s inland grain terminal or, as it was known for years, “the government elevator”. Completed in 1931, Lethbridge’s grain terminal was the last of five to be constructed by the federal government in prairie cities. Unlike a typical country elevator with a storage capacity of 150,000 bushels in a wood frame structure, Lethbridge’s inland terminal has a capacity of 1,250,000 bushels in reinforced concrete silos, a precursor of the new generation of concrete elevators that are springing up all over rural Alberta. And unlike a country elevator, grain terminals are equipped to dry and clean grain as well as storing it for onward shipment to the coast. It is the most conspicuous feature on Lethbridge’s skyline and is visible for many kilometers. The structure was privatized as Alberta Terminals Ltd. in 1979 and was sold to Cargill in 1992.

Ellison’s Milling and the inland grain terminal were predicated on the growing railway network and wholly dependent on the agricultural output of the surrounding region. They represented an important precedent as Lethbridge began its gradual transformation from mining town to diversified agricultural service centre. It would be many decades before further agriculturally-based industrial developments would take place and their impetus would have more to do with the availability of water than the proximity of railway transportation.

Internment Camp No. 133

During World War II, one half of the 34,000 German Prisoners of War who were brought to Canada were interned in Lethbridge. The federal government selected a mile square site just east of the city limits as the site of Internment Camp No. 133. It was opened in November 1942 with capacity for 13,000 German Prisoners of War. Its population peaked at 17,000 inmates at a time when Lethbridge itself had a population of only 15,000. The camp was the largest in Canada and housed POWs from all arms: *Wehrmacht* soldiers from the North African campaign and the British victory at El Alamein, *Luftwaffe* aircrew shot down over England, and *Kriegsmarine* sailors from U-boats captured in the North Atlantic. They were fed the same diet as Canadian troops, including jam, meat and other rationed foods, which caused some ill-will among the citizens of Lethbridge. Some of the prisoners were given the opportunity to leave the camp for weeks at a stretch to cultivate sugar beets for 50 cents a day in canteen credits. The last of the POWs were repatriated late in 1946. The Canadian government sold the camp to the province in 1947, and most of the

barracks and service buildings were moved or demolished. The abandoned prisoner of war camp became available at an opportune time in the post war years. The coal industry was in clearly in decline and to maintain its export base, Lethbridge would need a large quantity of land which would be suitable for industrial use and the economic expansion that the post war era would bring.

The Decline and Fall of the Lethbridge Coal Field

As late as 1909, the Lethbridge Coal Field was the largest coal producer in all of Alberta. Completion of the High Level Bridge in 1909 made it feasible to exploit the coal seams on the west side of the river and new mines were opened in Coalhurst, Diamond City and Shaughnessy to the north-west of the city. Coal production peaked at about one million tonnes in 1919 before entering a fifty year slide into oblivion. Natural gas from the Bow Island gas field became available for domestic use and excavation for gas mains to serve Lethbridge consumers began in 1912. Natural gas posed a serious threat to “Galt Coal.” Its much vaunted claim that it “burns all night,” was no longer of much competitive advantage in the natural gas era. As if a superior substitute product were not enough, a new coalfield in Drumheller also came into full production in 1912 which had a locational advantage in the coal markets of central and northern Alberta. Lethbridge prided itself as “The Coal City in Wheat Country,” but agriculture was already eclipsing Lethbridge’s coal industry by the first decade of the twentieth century.

In 1935, Galt No. 6, the last of the major coal mines in the City of Lethbridge proper, was closed as was the Coalhurst mine in 1936 after a catastrophic coal gas explosion killed sixteen miners. The two remaining mining companies were merged to form Lethbridge Collieries in an effort to rationalize mining operations. In the post war period the decline in domestic coal usage steepened. Oil discoveries such as Leduc Number 1 in 1947 just south of Edmonton made oil even more available for space heating. For farms and residences outside of the natural gas grid and heating oil delivery areas, propane was fast becoming the heating and cooking fuel of choice. The limited quantity of Lethbridge coal used to fuel steam locomotives was also falling fast as the CPR phased in diesel locomotives during the 1950s. Galt No. 8, which is still marked by its steel tibble, water tank and out buildings at the west end of the High Level Bridge, was closed in 1957. In 1965 a strike over wages was the impetus to shut down Galt Number 10, in the hamlet of Shaughnessy, fifteen kilometers north of Lethbridge. Some desultory small scale mining continued until 1969 when all coal mining activity ceased and the Lethbridge Coalfield became moribund. Massive volumes of coal still underlie the region, but energy prices would have to rise considerably for coal mining to ever become economically feasible.

Industrial Park and Industrial Infrastructure

With the loss of coal mining, Lethbridge had lost much of its industrial employment base and the city began to take a more active role in the development of its industrial potential. An Industrial Development Commission was appointed in 1957 and an Industrial Commissioner was hired in 1958. The Industrial Park was planned in the 1950s to use the abandoned POW camp site and an adjacent abandoned airfield as the nucleus of an industrial park in the north-east portion of the city, down wind from the city's residential areas. The industrial park was adjacent to the CPR's Crowsnest Pass line and Highway 3 joining Medicine Hat and points east with southern British Columbia. Rail sidings were built as required in the 1950s and 1960s. To sustain the needs of a modern industrial economy and attract new investment Lethbridge had to upgrade its infrastructure and reinvest in public works.

Drinking water capacity was boosted in 1955 with the construction of a 15 million litre reservoir and a 1.1 million litre water tank at Mayor Magrath and 3rd Avenue, near the edge of the industrial park. Water quality was improved in 1957 when a diversion weir was built in the Oldman River. These public sector investments were vital to the development of the industrial park as the agri-food processing industries in which Lethbridge would specialize place an exceptional load on waterworks.

Like Medicine Hat ("The Gas City" which owns and operates its own gas wells), Lethbridge had owned and operated its own coal mine to supply fuel for its own thermal electric power plant since 1908. The city produced and supplied electricity to domestic and industrial consumers alike and in the event that the city plant broke down, the coal mine's electrical power supply could be connected to power the city water pumps. By the middle 1960s the power plant was aging and in need of expansion while the vintage 1910 electrical generators and switchgear were deficient in capacity and obsolete. The municipally owned power plant was finally sold to Calgary Power (now TransAlta Utilities) in 1974. The brick municipal generating station, still clearly visible in the river valley to the south of the Whoop-Up Drive Bridge, was closed soon after. Lethbridge came to depend on private sector electrical power produced outside the city itself.

In 1969, the Lethbridge area was deemed to be a depressed region and it became a "designated area" under the *Regional Development Act* and industrial expansion was encouraged. The federal Department of Regional Economic Expansion provided incentives to a wide range of manufacturing enterprises including meat packers, metal fabricators, and manufacturers of agricultural

equipment. The principal factors which account for the post World War II industrialization of Lethbridge were growth in irrigation agricultural, the planning of a fully serviced industrial park, the promotional activities of the city's Industrial Development Commission and federal government largesse.

Meat Packing and Stock Yards Complex

For many years Lethbridge had track-side cattle handling facilities which were owned and operated by the CPR. But these corrals were just a scaled up version of the hundreds of originating yards in every small prairie town, on every branch line, for the temporary confinement and loading of cattle, hogs and sheep. They were sometimes called stockyards but they were not federally regulated, there was no veterinary inspection available for export cattle and they had no livestock markets.

When Canada ended its export embargo on cattle in 1948 (enacted to avoid the inflationary pressures on food prices experienced during World War I), the opportunities to export Western Canadian cattle to the United States seemed limitless. Lethbridge was only 100 kilometres north of the U.S. border, close to local sources of cattle feed and well served by rail. The land area under irrigation was expanding and the region was poised for take-off as a cattle feeding and finishing specialist. Thus the Lethbridge stock yard began to take on strategic significance and the originating yards were expanded to become a full service public stockyard under federal regulation in 1950. To attain this status, the yard added new livestock pens, an administration office to house cattle dealers and an auction ring. The yard had separate holding and food and water pens, a livestock scale to weigh carload lots of 25-30 cattle at a time and a cattle squeeze for branding, dehorning and vaccinating cattle. Loading facilities were available for single or double deck rail cars as well as transport trucks. Packer buyers, livestock commission agents and livestock dealers established offices at the yard along with the federally mandated veterinarians, provincial brand inspector and accredited weigh master.

Ten years later, in 1960, Canada's largest meatpacking firm, Canada Packers, established a beef plant on the edge of the Lethbridge Stockyard. Unlike the multi storey, multi species fully integrated packing plants then in vogue, this was the first single storey kill and chill plant in Canada to be dedicated to cattle. A specially built drive alley channelled slaughter cattle direct from the stock yard to the kill floor. A year later a second kill and chill plant was added by Canadian Dressed Meats which until then, only had one other plant in Toronto. Ten years after that, Swift Canadian, built Lethbridge's third cattle processing plant with federal assistance under the *Regional Development Incentives Act*. Together with the stock yards, a hide processing plant, livestock brokers, order buyers, cattle dealers, cattle trucking firms

and scores of nearby cattle feedlots, Lethbridge became the largest beef producing industrial complex in Canada for its size.

Cattle sales grew through the 1960s as federally regulated stockyards reached their peak, spurred in the case of Lethbridge, by three new beef packing plants. But the number of cattle handled by the stockyard began to decline. Direct-to-packer sales became the most common means of marketing finished cattle for slaughter while small community auction marts became more popular for stocker and feeder cattle transactions. Finally, there were fewer cattle moving from west to east by rail as cattle slaughter capacity in Western Canada grew. The yard was closed down in 1977, more than a decade before the three neighbouring packing plants began to lose their competitive advantage. In contrast to the closure of Toronto's Ontario Stockyards sixteen years later, Lethbridge's meatpacking complex continued in operation after the yard had disappeared from the scene. The stockyard had been instrumental in the development of the meatpacking industry in Lethbridge but with changes in cattle transportation technology and marketing channels, federally regulated public stockyards had become obsolete. The City of Lethbridge bought the stockyard site in 1981 and demolished it to make room for railway relocation and expansion of the Crowsnest Trail corridor (Highway 3) in 1984.

Despite the presence of many cattle feedlots in the surrounding area, Lethbridge no longer has any large scale cattle processing plants. Swift Canadian sold their plant to Gainers in 1981 but closed it two years later. After sitting vacant for ten years, it was renovated as Sakai Spice, a Japanese owned mustard seed processor. The Canada Packers plant was closed in 1991 and demolished four years later. Canadian Dressed Meats was sold to Burns Foods in 1970 which sold all of its meat packing plants to Maple Leaf Foods late in 1996. Cattle slaughter was suspended in the spring of 1998 and by late in the year, the 35 year old plant was converted to hog slaughter and processing for the Asian pork market. Vanee Livestock and Lethbridge Hides are the only remaining vestiges of Lethbridge's cattle processing industrial complex.

There was a lively local debate when Yuan Yi, a Taiwan-based agricultural and livestock enterprise, announced plans to build a new hog slaughter plant in June 1997. The plant was to process 8,000 hogs per week which would be trucked into Lethbridge to be killed, cleaned eviscerated and frozen for onward shipment to Japan. The plant would have employed 800 people and the total investment was forecast at \$50 million. The plant would have become Lethbridge's largest manufacturing sector employer and the fifth largest employer in the city.

Many in the city were in favour of the job creation potential of this large

investment. However, a vocal and erudite opposition group was concerned about the environmental, social and economic impacts of such a large investment. Issues such as the disposal of liquid effluent, the need for capital improvements to the city's sewage system, and the need for a formal environmental impact assessment were never resolved to the satisfaction of all in the community. As a result of environmental appeals, litigation relating to the land sale and construction delays, the project was cancelled in March, 1998.

Other Agri-Food and Beverage Processing Plants

One of the early food processors in Lethbridge was Western Canadian Seed Processors which was built on the old airport site in 1958. The firm began as a sunflower seed processing operation and later diversified into rape seed (known now as Canola), becoming the first company in the world to market canola oil. Renamed **Canbra Foods**, the firm was acquired by Burns Foods in 1965 and later acquired by the Peter Pocklington group. With the disintegration of the Pocklington empire it is once again an independent firm (the only Lethbridge-based firm which is traded on the Toronto Stock Exchange) and Canada's largest fully-integrated canola processor and packer. Canbra is Lethbridge's largest manufacturing employer with some 300 employees. It exports canola oil, shortening, salad oil and margarine to some 23 countries worldwide. Canola fields are easily identified by brilliant yellow flowers in mid summer which makes them a dramatic sight on the prairie landscape.

The Black Velvet Distilling Company, with its massive bonded warehouses, was opened in 1974 to ferment and distil local and imported corn into ethanol (neutral grain spirits). About 80% of the ethanol is shipped in bulk via railway tanker cars, most for export to the U.S. The remainder is blended with other ingredients to produce and bottle a variety of brand name consumer products such as Smirnoff's Vodka and Black Velvet Canadian Whiskey, mainly for the Western Canadian market. The Black Velvet plant occupies one of the larger land parcels in Lethbridge's industrial park but by North American standards is relatively small.

Formerly operated as York Farms by Canada Packers, **Maple Leaf Potatoes** is wholly owned by Maple Leaf Foods. It processes and quick fries potatoes to manufacture frozen french fries for domestic and institutional markets in Canada and overseas. Until 1999, Maple Leaf was the only local potato processor.

In April, 1999, **Lamb-Weston** opened a new French fry plant 13 kilometers east of Taber on Highway 3 (65 kilometers east of Lethbridge). Based in the Tri-Cities of the interior of Washington, Lamb-Weston operates ten state-of-the-art potato processing plants throughout Washington, Oregon and Idaho. The Taber plant is Lamb-Weston's first Canadian subsidiary but the firm also operates plants in

the Netherlands and in Turkey. The American parent firm was acquired by ConAgra in 1988. **McCain's Foods** of Florenceville, New Brunswick opened the region's third potato processing plant in the summer of 2000 at the hamlet of Chin on Highway 3, some 25 kilometers east of Lethbridge. After potatoes, the most important material input in these agri-food processing operations is high quality potable water. The McCain's plant depends on a continuous supply of water that is pumped from Lethbridge via a 20 inch line to Coaldale and a 12 inch line from Coaldale to Chin.

In Southern Alberta potatoes are grown under contract on irrigated land within a 50-100 kilometre radius of the plants. Potatoes require a four year rotation to restore soil fertility and avoid species-specific pests. Thus potato crops are rotated with sugar beets, corn and cereal crops. Potatoes are harvested in fall, stockpiled in climate controlled warehouses on farms, and delivered throughout the year as required by the processing plants.

Other notable agri-food processors in Lethbridge include Catelli which is owned by Borden Canada and produces pasta products using local durum wheat, Hostess Frito-Lay which produces snack foods, Lilydale Foods which processes poultry products, and Lucerne Foods which packs and freezes vegetables and juice concentrates. Most of these establishments depend on local agricultural resources and with a more liberal trade environment, they have succeeded in breaking into export markets in the United States and all over the world.

Lethbridge Iron Works

Lethbridge's oldest surviving manufacturer is undoubtedly Lethbridge Iron Works which was established as an iron foundry in 1898 at the corner of 1st Street and 1st Avenue South, the heart of the mining town. For years Lethbridge Iron Works provided diversified iron and steel services to the coal mine and other local customers. Using local coal as its source of fuel, it operated as an all purpose blacksmith, foundry and machine shop for the Lethbridge area. By the 1930s it was manufacturing agricultural equipment such as the Buffalo Plow Disc and irrigation control gates, but these products were never very successful. The firm depended almost entirely on the local market and relied on the 200 kilometre distance intervening between Lethbridge and Calgary as a form of natural trade protection against bigger competitors in Calgary and Edmonton.

Beginning in 1959, the firm gradually became a specialist foundry and it began to enter markets beyond Lethbridge. In 1963 the firm was licensed by INCO to produce ductile iron castings. Ductile iron is less brittle than conventional cast iron (or "grey iron") thus it is better suited to machinery applications. In spite of the

vicissitudes of manufacturing in the volatile Alberta economy, this proved to be the key decision in nearly four decades of growth and expansion. With help from the Department of Regional Economic Expansion, the plant relocated to its present seven acre parcel in the industrial park in 1975. It specializes in sand casting of ductile iron in a variety of shapes to satisfy the needs of western Canadian manufacturers of agricultural machinery (e.g. Flexicoil of Saskatoon), heavy truck and bus manufacturers (e.g. Western Star in Kelowna, B.C.), the railways and the oil and gas industry. Apart from the manhole and storm sewer covers the plant makes for the City of Lethbridge, the plant's nearest customers are over 500 kilometers away. Ductile iron ingots, the principal raw material, are shipped in from Quebec Iron and Titanium on the north shore of the St Lawrence River. The furnaces are now heated with electricity and the iron ingots are blended with steel scrap from local sources to derive precisely the right blend of molten iron for casting. The compressed sand moulds are shaped with wood and steel patterns. While the plant still depends on a highly skilled pattern-maker to create the shape to be duplicated first in sand and then in iron, many of the traditional skills of the iron foundry workforce have now been displaced by computer assisted manufacturing and state-of-the-art moulding machine tools. Thus the complex "industrial art" of moulding no longer plays a role in the modern iron foundry. Workers can be trained to operate the Hunter moulding machine in a fairly short time, a process which has reduced the plant's dependence on some of the more arcane skills associated with iron casting.

Foreign-Owned Manufacturers

Two Lethbridge manufacturers are worthy of note as they could have located almost anywhere based on their markets and sources of raw materials. Both plants are foreign owned and both selected Lethbridge in competition with many other locations in Canada's Prairie West.

Kawneer Industries was opened in 1983 to manufacture architectural aluminum extrusions and assemble window and door frames. Standardized and custom made architectural aluminum products are designed for both domestic applications and overseas construction in the Far East. Cylindrical bolts of aluminum two metres long by 15 centimetres in diameter are shipped from distant aluminum smelters and extruded through a variety of dies to form every conceivable shape of architectural stock. The plant employs 150-200 people and was acquired by ALCOA in 1998.

Pratt and Whitney Canada came to Lethbridge in 1990 to assemble its smallest gas turbine engine, the PT-6 which is used in civilian and military

aeroplanes and helicopters. Pratt and Whitney is a U.S. based firm that is ultimately controlled by United Technologies. The Lethbridge plant functions as a branch of Pratt and Whitney's much larger subsidiary plant in Longueuil, Quebec. Every component assembled in this plant is machined or fabricated elsewhere by Pratt and Whitney or one of its suppliers. Engine assembly requires a skilled workforce, many of whom have been trained in the Aviation program of the Southern Alberta Institute of Technology in Calgary. Prior to shipment to worldwide markets for aircraft equipment, finished engines are tested in elaborately sound-proofed and instrumented test beds with walls designed to explode outwards towards an open and empty field in the event of a catastrophic engine failure. Prior to deciding on a location in Lethbridge, Pratt and Whitney considered several other Western Canadian locations and the search finally narrowed to a short list that included Lethbridge and Saskatoon. Land and utility prices and the availability of a training program at Lethbridge Community College were among the most important considerations.

Conclusion

For a city of 69,000, Lethbridge has a remarkably diverse industrial structure in relation to the rest of the province. In 1996 manufacturing and processing industries constituted 8.9 percent of the labour force compared with only 8.3 percent for Alberta as a whole. Over the years Lethbridge has weathered the transition from trading post to coal mining town to agribusiness to diversified manufacturing which competes on world markets. The early growth of Lethbridge is related to its valley site at a point where the underground hydrocarbon resource was clearly visible and easy to reach. Its situation relative to Fort Benton at the head of navigation and later as a divisional point and junction of prairie rail lines was also an early advantage.

In more recent years, Lethbridge owes its success to three factors. First, the rich agricultural base, which is immeasurably enhanced by massive investment in irrigation works, is still vital for many of the city's food and beverage processors. Second, Lethbridge has benefited from government policies at all levels which helped to position the city favourably with respect to the railway network, subsidized the excavation and construction of irrigation infrastructure, acquired and serviced land in the industrial park, and provided direct incentives to firms electing to invest in the city. Third, Lethbridge has benefited from an "attractive business climate" which makes Lethbridge a more competitive location than other western metropolitan centres. Wages and salaries are relatively low and productivity appears to be high. In 1998 Alberta's level of unionization stood at 25.3 percent, well below Canada's national average of 33.3 percent. Of the 110 manufacturers listed in *Made in Lethbridge (2000 edition)*, only ten are unionized. Industrial land in Lethbridge is

cheap and taxes are low. Residential housing and property taxes are remarkably inexpensive. For example, the average cost for a detached bungalow in Lethbridge was \$115,000 compared with \$185,000 in Calgary and \$491,000 in Vancouver in 1999 according to the annual survey by Royal LePage. A host of recreational and social services are available; Lethbridge has at least one of almost every imaginable category of service and trade function. Thus the city benefits from urbanization economies that make it more attractive than even cheaper sites in smaller centres in Southern Alberta.

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