

THE TERMINAL GRAIN ELEVATORS



LAKEHEAD HARBOUR
Canada's Mid-Continent Seaport

THE LAKEHEAD HARBOUR

This Port, with 25 Terminal Grain Elevators having a storage capacity of 106,000,000 bushels, is recognized as one of the world's greatest concentrations of bulk grain storage.

The potential receiving and shipping capacity of its Terminals has never been taxed to the limit.

The Harbour plays a most strategic and important role in forwarding Western Canada grain to the markets of the world.



PUBLISHED BY THE
LAKEHEAD HARBOUR
COMMISSION
MARCH 1966



CANADA MALTING CO. LIMITED



FEDERAL GRAIN LIMITED



MANITOBA POOL ELEVATORS



McCABE GRAIN COMPANY LIMITED



NATIONAL GRAIN COMPANY
LIMITED



PARISH & HEIMBECKER LIMITED



N. M. PATERSON & SONS LIMITED



JAMES RICHARDSON & SONS LTD.



SASKATCHEWAN WHEAT POOL



SEARLE GRAIN COMPANY LIMITED

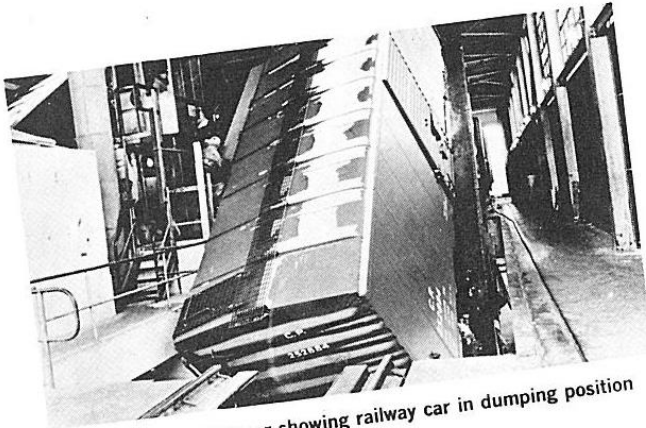


UNITED GRAIN GROWERS LIMITED

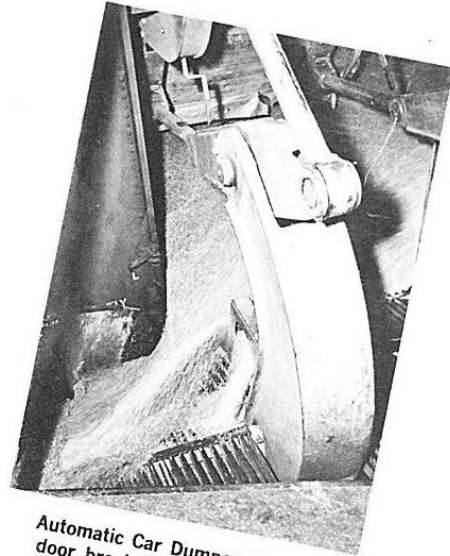


WESTLAND ELEVATOR LTD.

SIX STEPS OF GRAIN SAMPLING



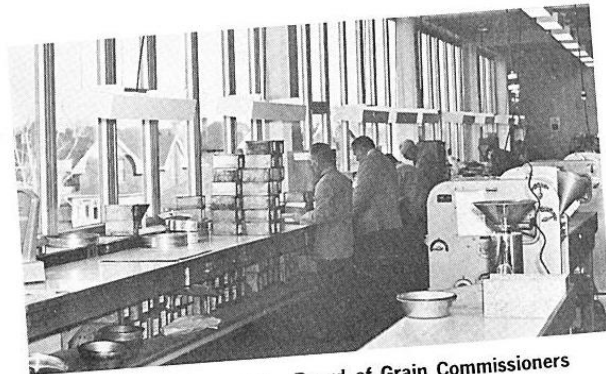
Automatic Car Dumper showing railway car in dumping position



Automatic Car Dumper showing door breaker entering car and grain flowing.



Grain being inspected by one of the Supervisory staff of Canadian Board of Grain Commissioners.



Main inspection room—Board of Grain Commissioners Lakehead.



View of moisture tester—Board of Grain Commissioners — Lakehead



Storage Room of samples taken by Board of Grain Commissioners.

LAKEHEAD HARBOUR TERMINAL GRAIN ELEVATORS

Our Terminal Elevators are world renowned for their grain storage capacity, rating among the greatest for world ports. Only limited information is now available, however, as to the combined potential of the receiving, cleaning, drying and shipping capacities of the equipment installed in the 25 Terminal Elevator plants. These basic operations are primarily responsible for the part our Harbour plays in moving Canada's exportable grain to world markets.

In the year 1964 our Terminal grain Elevators moved 445,319,081 bushels of Western Canada grain and were responsible for 68.4% of the total tonnage handled by the Lakehead Harbour (12.8 million tons out of a total of 18.7 million tons). Forecast figures for the 1965 Western Canada grain crop indicate that in excess of seven hundred million bushels of wheat will be harvested, near an all-time record. Canada's export commitments already assure a maximum movement through the Lakehead Harbour during the 1965-66 crop year.

During the past two years the Harbour Commission has cooperated closely with the Canadian Wheat Board and the Board of Grain Commissioners in providing harbour tours for Trade Commissions from numerous countries overseas. Thousands of tourists from Canada and the U.S.A. have also visited our harbour. Many questions have been asked regarding the Terminal grain handling facilities and the Lakehead Harbour Commission feels that a brochure in this regard would be most informative.

Early in 1965 the management of all Grain Companies having Terminals at the Lakehead were unanimous in their approval that such a brochure would be beneficial. Complete information was provided by the elevator operators regarding their respective plants based on questionnaires distributed to all Elevators. These were later reviewed by a personal visit of representatives of the Harbour Commission to all Terminals.

Pertinent facts covering the combined potential of all Terminals for receiving, cleaning, drying and shipping to vessels and to railway boxcars for each Terminal Elevator are included in this brochure as an appendix listed as TABLE No. 1.

Grain in Canada is handled in bulk. The normal procedure is to preserve the identity of every car of grain only until its grade and weight has been established under government supervision at the Lakehead. Subsequent to this procedure the general practice, for convenient handling purposes, is to bulk together carlots of grain of the same type and grade.

Cars are hauled into the track shed section by means of a motor driven car puller cable and spotted directly over a receiving pit. The grain is then unloaded using hand operated shovel equipment or the more modern automatic boxcar unloader. The complete contents of each car is dumped into a track receiving hopper. The grain then passes along a conveyor belt to an elevator leg which, in order to take advantage of the gravity flowing quality of grain in bulk, lifts the grain to the top floor of the elevator workhouse. This elevator leg is equipped with a vertical rubber belt carrying small steel buckets. These legs vary in carrying capacity depending on the width of belt

and the size and spacing of the buckets. The normal elevator receiving and shipping legs in our Terminals are equipped with an 84 inch head pulley and operate at a belt spread of 688 feet per minute.

Conveyor belts in general operate at a speed of 850 feet per minute with capacities depending on the width of belting.

Each carlot of grain is discharged into and accumulated in the garner bin located on the garner floor directly below the top floor of the workhouse. It is then dropped by gravity into a hopper scale on the scale floor immediately below where it is weighed under government supervision.

From this point on, the grain may be dropped by gravity directly into a small workhouse bin to enable its further cleaning, processing or separation. It may also proceed directly to the large storage annex bins via a belt conveyor located on the bin floor.

Likewise, the procedure in shipping grain out from the Elevator via vessel or rail car is more direct than the receiving process. Grain in storage is drawn from the storage bins and carried on a basement conveyor belt back into the workhouse section. Here it is elevated to the top floor on a shipping elevator leg. It passes through the shipping garner and scale units and finally reaches the rail car via a special car loading spout, or it discharges into a small upper shipping bin and from here it reaches the waiting vessel via a boat loading spout operated from the dock level.

In general the typical modern grain Elevator at the Lakehead Harbour follows the design shown on sketch No. 1. Sections through the working house and storage units are included to indicate the various floors and the location of equipment thereon required to perform the normal primary functions of grain handling, including the unloading from cars, cleaning, elevating, weighing, and conveying grain to the storage bins. The equipment required to ship grain by both rail car and lake vessel is also shown on this sketch.

The following totals cover the combined potential of all Terminal Elevators:

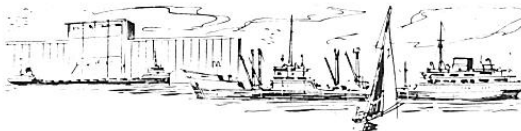
- (1) There are 25 Terminal Elevators located on the Lakehead Harbour, 14 located on the open roadstead and 11 on the River systems.
- (2) The combined storage capacities for all 25 plants are as follows:

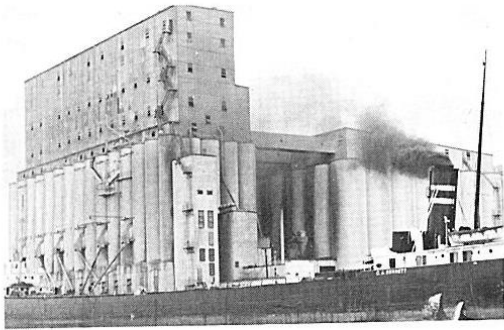
Workhouse Capacity—8,621,900 bushels— 8.12%
Storage Capacity — 97,543,000 bushels—91.88%

Total Capacity—106,164,900 bushels—100.00%

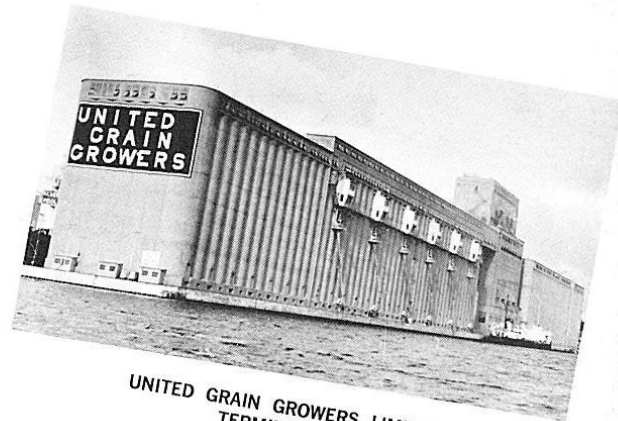
NOTE:

TABLE No. 2 gives combined storage figures for elevators

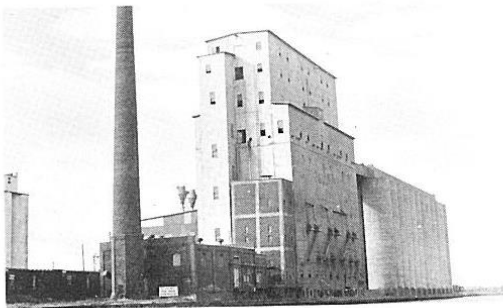




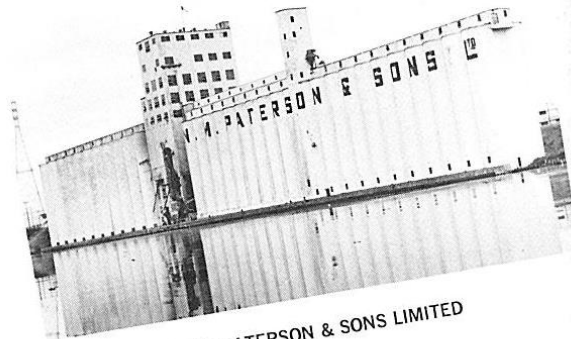
NATIONAL GRAIN COMPANY LIMITED



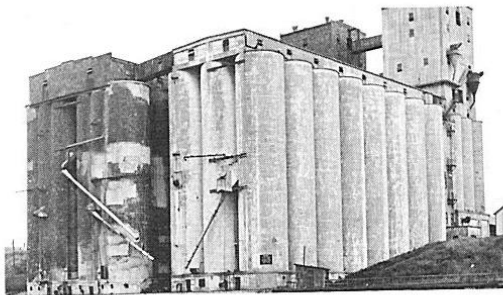
UNITED GRAIN GROWERS LIMITED
TERMINAL "A"



UNITED GRAIN GROWERS LIMITED
(THUNDER BAY)



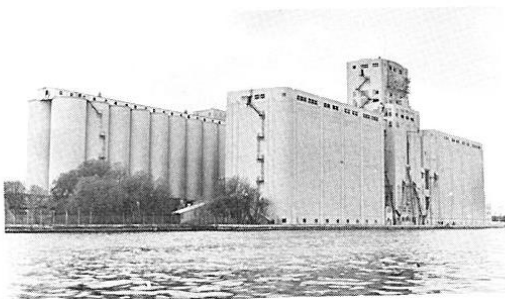
N. M. PATERSON & SONS LIMITED



SASKATCHEWAN WHEAT POOL No. 11



SEARLE GRAIN COMPANY, LIMITED
ELEVATOR "B"



SEARLE GRAIN COMPANY, LIMITED
ELEVATOR "A"

operated by the various Grain Companies at the Lakehead. The effective working capacity of the Terminal Elevators is said to be approximately 95 million bushels.

- (3) Twelve plants are switched by both C.P.R. and C.N.R.
Nine plants are switched by C.P.R. only.
Five plants are switched by C.N.R. only.

- (4) Railway trackage on elevator sites will accommodate 1675 loaded grain cars.

- (5) Railway trackage is also available at the sites for 1633 cars from which grain has been unloaded.

(6) Unloading Equipment

Automatic boxcar dumpers —21 units are located at 8 plants.
Hand operated shovel pits —179 units located at all 25 plants.
Combined unloading capacity—180 cars per hour or approximately 360,000 bushels per hour.

(7) Elevator legs

No. of Receiving Legs— 73 units for transferring grain from boxcar to Elevators.
No. of Shipping Legs —105 units for loading out grain to cars and vessels.
No. of Special Legs —197 units for cleaning and drying grain and for handling elevator screenings.

TOTAL —375 units

(8) Grain Hopper Scales

No. of Receiving Scales — 76 units varying in the main from 1000 to 2500 bushels cap.
No. of Shipping Scales —102 units varying in the main from 1000 to 2500 bushel cap.

TOTAL —178 units

(9) Grain Cleaning Equipment

No. of Screen Type units—371
No. of Cylinder units —343
No. of Special units — 40

TOTAL —754 units

Approximate combined cleaning capacity per hour 287,000 bushels.

NOTE:

See Table No. 3 for listing of types of cleaning equipment installed in local Terminals to remove foreign material including other cereal grains generally referred to by elevator operators as dockage and separate cars of mixed grain into their respective groups.

(10) Grain Drying Equipment

Some 22 of the Lakehead Harbour's 25 Terminals are equipped with grain drying equipment. There are 30 drier units with a combined drying capacity of 22,700 bushels per hour. Units vary from 300 to 1000 bushels per hour capacity with an average of 748 bushels per hour.

Grain drying is accomplished by passing dry heated air through the grain. Drier units are provided with intermittent discharge mechanisms and may be arranged for both continuous flow or batch drying.

Driers are rated on their ability to reduce the moisture content of grain. For instance a 1000 bushel unit would be required to reduce the moisture in the grain by 5% when operating at 180 °F and with humidity not over 80% at a rate of 1000 bushels per hour without damage to the quality of the grain.

The purpose of reducing the moisture content in grain is to enable the elevator operator to store it in a bin without the hazard of deterioration by heating, etc. Grain with a moisture content in accordance with the percentage limitations established by the Canada Grain Act is considered to be in warehousing condition and may be stored indefinitely without resulting damage.

The heating unit in the drier installation may be fired with coal, oil or gas.

(11) Shipping Capacity to boxcars

104 cars per hour can be loaded out via 84 car spouts. All Terminals are equipped for car loading

(12) Shipping capacity to vessels

All Terminals are equipped with boat loading spouts. Our survey indicates that 1,380,000 bushels per hour can be loaded out via 128 boat spouts of which 16 are high level provided for convenient ocean vessel loading.

(13) Mileage of Rubber Belting

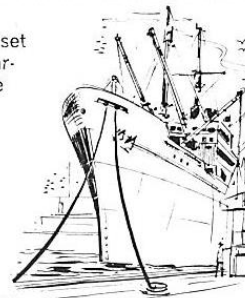
Conveyor Belts —52.86 miles
Elevator Leg Belts—28.58 miles

TOTAL —81.44 miles for all 25 plants.

(14) Screening Pelletizing Plants

Three Terminals have provided pelletizing equipment with a total estimated production of 90,000 tons of pellets per year.

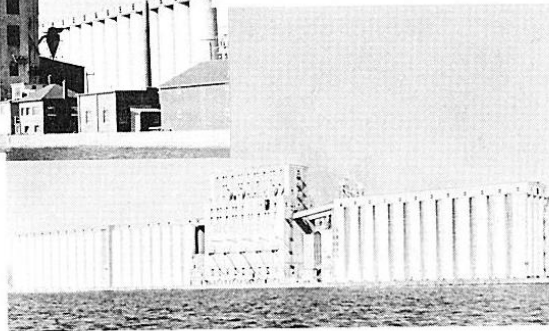
The combined figures set out above covering the various basic operations are based on the information supplied by the operating Superintendents at the various plants. The capacity for unloading cars per hour at the Elevators is, in our opinion, conservative and represents what is considered to be the normal output. The maximum





**SUPERIOR ELEVATOR COMPANY LIMITED
PARRISH & HEIMBECKER**

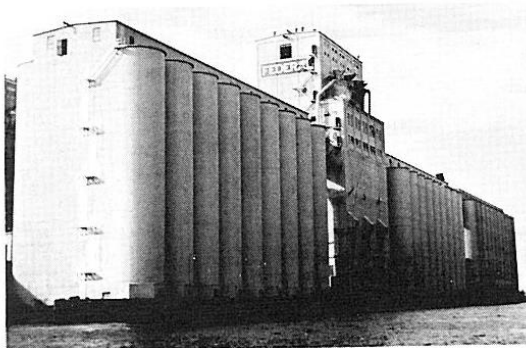
RICHARDSON TERMINALS LIMITED



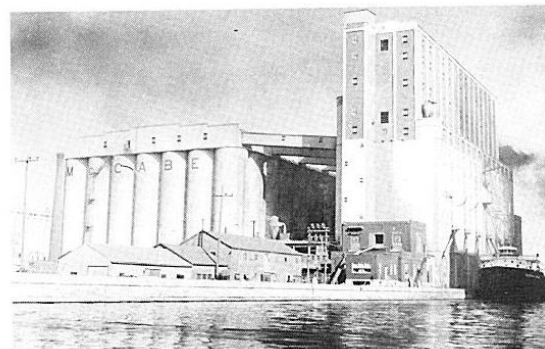
WESTLAND ELEVATORS LIMITED



**FEDERAL GRAIN LIMITED
NORTHWESTERN TERMINAL**



**FEDERAL GRAIN LIMITED
STEWART TERMINAL**



McCABE GRAIN COMPANY LIMITED

potential for this operation, based on records already established where automatic car dumpers and where manual unloading shovel equipment are in use, would indicate that in some instances, under the most favourable overall operating conditions, the unloading figures for cars unloaded in an 8 hour day were 50% greater than the average given.

Dealing with the capacity for shipping grain to lake freighters we would point out that during the week of

December 7, 1961, the total grain loaded on vessels eastbound from the Lakehead was 20,608,000 bushels or an average of 3,443,666 bushels per day, based on a 5 day work week. It will be apparent therefore that based on the survey just completed and taking into consideration the added handling facilities made available since 1961 our Lakehead Harbour grain Terminals have not as yet been taxed to their full potential.

LAKE SHIPPERS' CLEARANCE ASSOCIATION

The contribution made by this organization in expediting the movement of grain is outstanding. Organized in 1909 by the grain shippers themselves it operates as a clearing house for grain documents, combining same from various shippers, whereby the maximum dispatch is rendered to vessels taking on cargo. In the same manner it augments movement by rail by arranging the most advantageous distribution of cars to terminals for loading with a minimum of switching operations.

Warehouse receipts issued by any Elevators are tenderable in satisfaction of any purchase of grain made in the grain markets. Without a clearing house for handling such documents a vessel would be required to take on grain at every Elevator against which the shipper held a warehouse receipt causing serious loss of time due to vessel movement in the Harbour. By combining warehouse receipts and permitting maximum loading at any one Elevator, the movement of grain is expedited and the cost of marketing same is kept at a minimum.

The Association, handling as it does all outward shipments, and having on call at the Terminal Elevators large quantities of grain at all times, is in a position to place boats at Elevators that are full and would otherwise have to close down for want of storage space. By this action the Association keeps all Elevators unloading cars to the maximum degree possible and the overall unloading capacity of the Port is maintained at its maximum at all times.

The operators of the Lake Shippers' Clearance Association have proven that it is rendering to the grain trade, the Terminals and the transportation companies a most valuable and indispensable service. It is admitted by all interests that the business of shipping and transporting grain could not be economically or successfully carried on without its activities.

THE GRAIN MOVEMENT

The chain of transportation facilities required to move our Western Canada grain from the farm to the several export outlets viz: westward to the Pacific Coast, north to Hudson Bay, east to the Lakehead and on to the Atlantic Ocean, includes some very important links. Our two great transcontinental railways, a number of Canadian shipping companies operating vessels on the St. Lawrence Seaway, together with ships from overseas under foreign registry, cooperate to provide this service.

RAIL TRANSPORTATION

The movement by rail from the wheat growing area to the seaboard averaged about 482 million bushels per

year requiring approximately 254,000 boxcars annually during the five year period 1957-8 to 1961-2 according to Board of Grain Commissioners for Canada statistics.

The impact of the 1965 Russian grain purchase in amount some 215 million bushels in itself will require approximately 114,000 boxcars and 500 ocean going shiploads according to transportation authorities. The delivery period for the Russian order terminates in July 1966 and the eastbound rail movement to the Lakehead for transshipping will average approximately 350 cars per day, Sundays included, to meet this schedule. Superimposed on the normal movement under the current boom economy in Canada the task confronting our railroads today will require a major effort on their part.

However the Canadian Pacific Railway and the Canadian National Railway have demonstrated that they can jointly delivered to their Lakehead marshalling yards over 1000 cars daily with existing rolling stock. Marshalling yard space at the Lakehead includes 126.1 miles of C.P.R. trackage and 93.08 miles operated by the C.N.R. It is a matter of record that during the crop year 1963-4, August 1st, 1963 to July 31st, 1964, grain deliveries to Lakehead Terminals by the C.P.R. and C.N.R. were as follows:

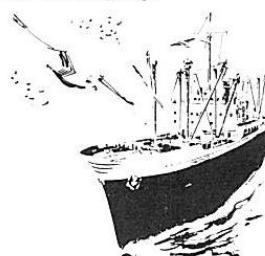
Canadian Pacific Railway	116,511 cars
Canadian National Railway	111,030 cars
TOTAL	227,541 cars

The maximum calendar monthly delivery in November 1963 was as follows:

Canadian Pacific Railway	15,000 cars
Canadian National Railway	15,664 cars
TOTAL for month	30,664 cars
Average per day	1,022 cars

The Elevators operating on a 22 working day month basis unloaded the cars delivered in November at a rate of approximately 1400 cars per working day.

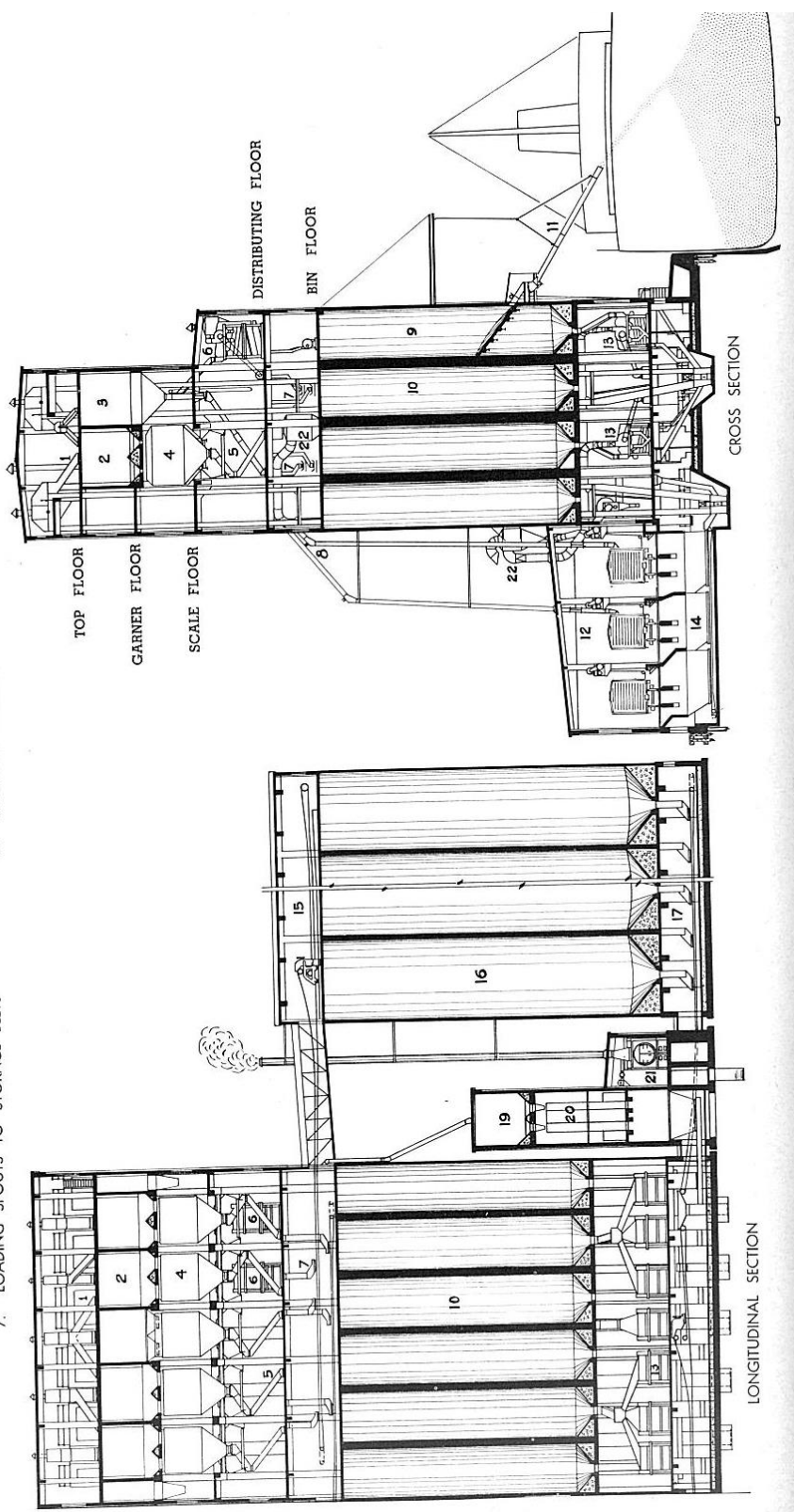
It will be of interest to note that with existing diesel engine power solid trains of 125 loaded grain cars are moved regularly to the Lakehead by both railroads. These trains are roughly one and one half miles long. Trains of empty grain cars returning to the West for reloading



TYPICAL TERMINAL GRAIN ELEVATOR AT THE LAKEHEAD HARBOUR

LAKEHEAD HARBOUR COMMISSION

- | | | |
|--|--------------------------|----------------------|
| 1. DISCHARGE SPOUTS FROM ELEVATOR LEGS | 8. CAR LOADING SPOUTS | 15. STORAGE CUPOLA |
| 2. SCALE GARNER | 9. SHIPPING BIN | 16. STORAGE BINS |
| 3. CLEANER GARNER | 10. WORKHOUSE BIN | 17. STORAGE BASEMENT |
| 4. HOPPER SCALE | 11. BOAT LOADING SPOUT | 19. DRIER GARNER |
| 5. MAYO AND TELESCOPIC DISTRIBUTING SPOUTS | 12. CAR UNLOADING SHED | 20. DRIER |
| 6. SCREENINGS SEPARATOR | 13. RECEIVING SEPARATORS | 21. BOILER HOUSE |
| 7. LOADING SPOUTS TO STORAGE BELTS | 14. RECEIVING HOPPERS | 22. DUST COLLECTORS |



handle in excess of 200 cars in some cases.

During the rush season before the close of navigation on the St. Lawrence Seaway, grain cars numbering 1,400 could arrive daily via our two railroads, be unloaded at our Terminals, and returned to Western Canada's country elevators for further grain shipments.

The survey shows that with favourable operating conditions including appropriate weather in Western Canada and vessel space being available at the Lakehead the 1963-4 average handling record can be greatly exceeded.

WATER TRANSPORTATION

With the splendid service rendered by the Lake Shippers' Clearance Association which expedites the rapid loading of the great lake freighters and ocean going vessels, the Lakehead Harbour Elevators, based on combined survey figures, have a maximum shipping potential of 13 million bushels per day. This quantity could be loaded out by its 25 Elevators. This figure is contingent on proper grades being available to meet export commitments, on vessel space being available here at all Elevators and depends on the ability of elevator facilities at Eastern Canada Terminals to unload the lake freighters and reload the grain to ocean bottoms with equal dispatch. Any delays at the St. Lawrence River Terminals or at lower Lake Ports due to lack of ocean cargo space would curtail the movement and our Lakehead output would of necessity slow down with reducing Port handling.

It would seem apparent, however, that the present urgency of demand of Canadian wheat particularly on the Continent of Europe and in other world ports would require adequate ocean vessel space being made available at our export outlets during the 1965-66 crop year.

With great lake bulk carriers operated by Canadian Companies and their affiliates, as per TABLE No. 4, carrying single cargoes up to 1,000,000 bushels approximately plus the ocean cargo vessels loading in the Port for direct shipment overseas, our water movement potential is, in our opinion, adequate. Cargoes as great as 1,000,000 bushels have been loaded out at a single Lakehead Terminal in ten hours. With their numerous hatches and wide unobstructed holds, lake vessels can be loaded much faster than ocean vessels.

As in the case of all modes of transportation it is essential that industrial harmony prevails and that labour unrest does not interrupt this phase of the transportation system.

During the calendar year 1964 some 963 lake freighters and 80 ocean vessels loaded grain at the Lakehead Harbour with a crop movement of 447,453,212 bushels. In addition to the above grain 151,497 tons of grain screenings including the pelletized product were loaded out on lake vessels. Our shipping potential to vessels greatly exceeds the 1964 crop movement.

(1) Electro-Magnets

Over each receiving conveyor belt an electro-magnet is located to remove from the incoming grain all metal particles such as nails, wire, bolts, and screws, etc., which would damage equipment used later in the cleaning process.

(2) Receiving Separators, Style "B", Monitor Type, Huntley Design

These separators provide an initial air separation which removes immature grains, light impurities, chaff, dust, etc. The grain drops onto a roughing screen where stones, sticks, strings and coarse refuse are taken off. Additional screening operations take place which remove other cereal grains and a further air suction is applied to remove impurities not caught in the initial air suction. The cleaned grain discharges to conveyors thence to an elevator leg. This equipment has been in use for many years. Local installations include 178 Style No. 11B, 27 Style No. 10B and 41 Style No. 9B, a total of 246 units.

(3) Monitor Screening Separators of the Huntley Co. Design

These machines have also been in service for many years for reclaiming usable grain and seeds from the screenings removed by the receiving separators. As many as nine sets of screens provide numerous separations and machines are equipped with two air separations. Local installations number 20 units. (Style "A")

(4) Monitor Flaxseed Separators of Huntley Design

Separators of this type are also used to clean flaxseed in many Terminals. Both screen and air separation are provided in this operation with remarkable efficiency. Local units installed number 24 style No. 8A.

All in all some 290 machines of Huntley design are in service in Lakehead Plants.

(5) Cylinder Type Separators of Superior Separator Co. Design

Equipment of this design is installed in many plants. These cleaners provide two air separations and up to five selective cylinder separations for handling various types of grain. Screenings are handled by similar equipment in a number of plants and some Terminals are equipped with Superior Width Graders for wheat and oat separation.

All in all 353 units of Superior Separator Design are in use at the Lakehead.

(6) Destoners

Of several designs are used for removing pebbles. nineteen units are installed.

(7) Threshers

For breaking up wheat heads.
Eight are in use.

(8) Cylinder Machines, Uniflow Type by Hart-Emmerson Co.

These machines are used in some plants. Styles No. 44 and No. 45. total of 56 units are in service.



[illegible]

TRIAL SURVEY COVERING WATERFRONT TERMINAL GRAIN ELEVATORS

BY LAKEHEAD HARBOUR COMMISSION

ORANGE DATA			STATISTICS RE. TRACKING				ELEVATOR LEGS		SCALE EQUIPMENT			GRAIN CLEAN. EQUIP.			GRAIN DRY. EQUIP.		MARINE LEGS						
SECTION	CAPACITY IN BUSHEL	TOTAL PLANT CAPACITY IN BUSHEL	ELEV. SWITCH BY	CAP. CAR LOADS	CAP. CAR EMPTY	AUTO CAR DUMP	HAND OPER. SHOV. PITS	NO. OF REC.	NO. OF SHIP.	NO. OF SPEC.	NO. REC. SCALE	NO. SHIP SCALE	UNIT CAP. IN BUSH.	SCREEN TYPE UNITS	CYL. TYPE UNITS	SPEC. UNITS	NO. UNITS	CAP. IN BUS. PER HOUR	NO.	CAP. IN BUSH. PER HR.	CAR LOAD. SPOUT	BOA LOA SPO	
ete ete ete	964,500 1,093,400 610,400	2,947,300	CNR	51	51	1	3	2	3	3	2	3	2000	12	4	1	1	1000	—	—	4	3-45'	
	2,668,300																						
ete ete ete	936,000 936,000 1,153,500	3,276,500	CNR CPR	54	54	—	6	2	3	3	2	3	2000	11	10	2	1	500	—	—	2	3-45'	
	3,025,500																						
ete ete ete	255,000 470,000 1,856,000	2,907,000	CNR CPR	32	16	—	8	2	3	8	3	3	2000	35	13	2	2	1 - 1000 1 - 500	—	—	2	4-55'	
	2,581,000																						
ete ete ete	350,000 1,000,000 4,350,000	6,080,000	CNR CPR	56	60	2	2	2	3	14	2	3	2500	20	25	1	1	1000	1	5,000	1	6-68'	
	5,700,000																						
ete ete ete	1,300,000 2,150,000 2,500,000	1,400,000	CPR	36	36	—	5	2	1	4	2	1	2000	4	8	—	—	—	—	—	2	2-57'	
	1,650,000																						
ete ete ete	7,600,000	7,700,000	CNR	63	63	—	6	2	4	5	2	4	1500	18	13	—	2	1 - 1000 1 - 500	1	8,000	4	3-50' 1-55'	
ete ete ete	400,000 520,000 1,000,000	2,000,000	CNR	40	40	—	4	2	2	4	2	2	2000	10	9	2	1	500	—	—	2	2-57'	
	1,920,000																						
ete ete ete	2,670,000	3,250,000	CPR	68	68	—	20	5	5	11	5	5	2000	19	18	2	2	1 - 800 1 - 800	—	—	5	7-40' 1-75'	
ete ete ete	2,500,000 2,500,000	5,750,000	CNR CPR	92	120	—	20	5	5	9	5	5	2000	8	24	3	2	1 - 750 1 - 750	—	—	5	6-41' 1-80'	
	5,000,000																						
ete ete ete	185,000 512,000 813,000	1,630,000	CPR	29	29	—	2	1	2	—	2	1	2000	3	5	1	1	400	—	—	2	2-55'	
	1,530,000																						
ete ete ete	499,000 648,200 980,000	4,000,000	CNR CPR	40	40	—	8	2	2	11	2	2	2500	14	8	—	2	1 - 150 1 - 650	1	8,000	2	2-50'	
	1,720,300																						
ete ete ete	1,500,000 1,500,000 2,000,000	5,500,000	CNR CPR	75	75	—	12	3	4	8	3	4	2000	32	11	—	2	1 - 1000 1 - 1000	1	15,000	4	5-48'	
	5,000,000																						
ete ete ete	2,000,000 2,000,000 2,000,000	6,500,000	CNR CPR	92	92	—	16	4	4	10	4	4	2000	18	17	3	1	1000	—	—	8	6-40' 2-83'	
	6,000,000																						
ete ete ete	500,000 1,000,000	1,900,000	CPR	60	60	2	2	2	3	9	2	3	2000	11	17	5	—	—	—	—	2	6-52'	
	1,500,000																						
ete ete ete	800,000 1,125,000 210,000	3,100,000	CNR CPR	53	58	—	9	5	9	10	5	7	1600	23	13	3	—	—	—	—	4	6-45'	
	845,000																						
ete ete ete	2,244,700 2,244,700 2,244,700	7,334,100	CNR	100	100	4	4	4	5	12	4	5	2000	12	21	—	1	1000	—	—	5	5-50' 2-90'	
	6,734,100																						
ete ete ete	6,000,000 2,100,000	9,000,000	CNR	190	190	5	5	5	6	18	5	6	2000	28	27	3	1	1200	1	12,000	6	9-60' 2-85'	
	8,100,000																						
ete ete ete	497,800 771,000 1,291,200	3,055,000	CPR	32	20	1	—	2	3	12	2	1	1 - 2000 2 - 500	6	11	1	—	—	—	—	1	2-46'	
	2,560,000																						
ete ete ete	1,489,000	1,750,000	CPR	42	42	—	6	3	6	5	3	6	1600	5	10	2	1	900	—	—	4	3-40'	
ete ete ete	920,000 750,000	1,750,000	CPR	44	44	—	4	2	4	4	2	4	3 - 1600 3 - 2000	5	7	1	1	500	—	—	4	2-37' 1-60'	
	1,670,000																						
ete ete ete	1,500,000	1,750,000	CPR	36	36	—	8	4	4	4	4	4	1500	13	5	1	1	300	—	—	3	4-40'	
ete ete ete	1,400,000 1,400,000 2,000,000	5,000,000	CNR CPR	87	72	3	2	2	2	6	3	4	2500	14	17	3	2	1 - 1000 1 - 500	—	—	2	2-47' 1-58' 1-66'	
	4,800,000																						
ete ete ete	400,000 500,000	1,000,000	CNR CPR	32	32	—	8	1	3	3	1	3	2 - 2000 1 - 1400	3	5	—	1	500	—	—	1	3-47'	
	900,000																						
ete ete ete	2,500,000 1,000,000 4,250,000	8,250,000	CNR CPR	84	84	3	1	3	4	12	3	4	2500	25	20	1	2	1 - 1000 1 - 1000	—	—	4	4-27' 6-33'	
	7,750,000																						
ete ete ete	1,162,000	1,474,000	CNR CPR	51	51	—	9	3	3	6	3	3	1500	9	9	1	1	1000	—	—	3	3-40'	
ete ete ete	1,766,000 1,602,000 4,167,600	7,861,000	CPR	136	100	—	9	3	12	6	3	12	10 - 1500 5 - 1000	13	16	2	1	500	—	—	2	10	
	7,535,600																						
97,543,000			106,164,900		1675	1633	21	179	73	105	197	76	102		371	343	40	30	22,700	5	48,000	84	128

ION

AIN CLEAN. EQUIP.				GRAIN DRY. EQUIP.				MARINE LEGS				OPERATING STATISTICS FOR AVE. 8 HR. DAY SHIPPING CAPAC.				MILEAGE RUB. BELTS		CAPACITY OF PELLETIZING PLANT FOR SCREENING
REEN CYL. TYPE UNITS	SPEC. UNITS	NO. UNITS	CAP. IN BUS. PER HOUR	NO.	CAP. IN BUSH. PER HR.	CAR LOAD. SPOUT	BOAT LOAD. SPOUT	BOXCARS UNLOAD.	CLEANING CAPACITY IN BUSHELS	BXCR. LOAD OUT	TO VESSELS LOADING IN BUSHELS	CONVEYOR BELTS	ELEV. LEG BELTS					
12	4	1	1	1000	—	—	4	3-45'	32	88,000	16	300,000	1.30	.70	—			
11	10	2	1	500	—	—	2	3-45'	54	50,000	20	300,000	1.50	.50	—			
35	13	2	2	1 - 1000 1 - 500	—	—	2	4-55'	48	144,000	16	400,000	1.41	.81	—			
20	25	1	1	1000	1	5,000	1	6-68'	100	150,000	100	650,000	3.75	1.50	—			
4	8	—	—	—	—	—	2	2-57'	40	85,000	20	240,000	0.80	0.50	—			
18	13	—	2	1 - 1000 1 - 500	1	8,000	4	3-50' 1-55'	60	100,000	40	500,000	3.75	.75	—			
10	9	2	1	500	—	—	2	2-57'	40	80,000	20	240,000	.55	.89	—			
19	18	2	2	1 - 800 1 - 800	—	—	5	7-40' 1-75'	40	120,000	17	400,000	1.25	1.50	—			
8	24	3	2	1 - 750 1 - 750	—	—	5	6-41' 1-80'	75	180,000	20	584,000	2.60	1.20	—			
3	5	1	1	400	—	—	2	2-55'6"	20	12,000	24	280,000	.87	.20	—			
14	8	—	2	1 - 150 1 - 650	1	8,000	2	2-50'	40	44,000	16	320,000	1.42	.76	—			
32	11	—	2	1 - 1000 1 - 1000	1	15,000	4	5-48'	90	80,000	15	500,000	2.30	1.20	1 Plant in use. (Data not available)			
18	17	3	1	1000	—	—	8	6-40'6" 2-83"	60	80,000	64	480,000	5.50	2.50	—			
11	17	5	—	—	—	—	2	6-52'0"	80	136,000	32	480,000			—			
23	13	3	—	—	—	—	4	6-45'	60	65,000	32	400,000	2.00	2.00	—			
12	21	—	1	1000	—	—	5	5-50' 2-90'	104	80,000	32	660,000	1.50	1.50	—			
28	27	3	1	1200	1	12,000	6	9-60' 2-85"	120	240,000	100	1,200,000	6.00	2.25	—			
6	11	1	—	—	—	—	1	2-46'6"	32	40,000	15	300,000	1.50	1.25	—			
5	10	2	1	900	—	—	4	3-40'0"	32	60,000	36	320,000	0.76	0.90	—			
5	7	1	1	500	—	—	4	2-37' 1-60'	40	100,000	16	320,000	1.00	.75	—			
13	5	1	1	300	—	—	3	4-40'	16	19,000	24	250,000	.60	.70	—			
14	17	3	2	1 - 1000 1 - 500	—	—	2	2-47' 1-58' 1-66'6"	70	85,000	30	450,000	2.10	2.05	2 California Pelletizing Mach. 4 100 H.P. Grinders 1 50 H.P. Grinder 30,000 tons per year			
3	5	—	1	500	—	—	1	3-47'10"	20	24,000	24	240,000	.95	.47	—			
25	20	1	2	1 - 1000 1 - 1000	—	—	4	4-27'9" 6-33'0"	90	140,000	50	500,000	4.50	1.50	1 unit 6 tons per hour 30,000 tons per year estimated			
9	9	1	1	1000	—	—	3	3-40'5"	30	48,000	32	350,000	1.05	.58	—			
13	16	2	1	500	—	—	2	10	40	32,000	20	400,000	3.90	1.62	—			
371	343	40	30	22,700	5	48,000	84	128	1433	2,282,000	831	11,064,000	52.86	28.58	3 Plants			

INDUSTRIAL SURVEY COVERING WATERFRONT 1

STORAGE DATA		STATISTICS	
TYPE OF CONSTRUCTION	CAPACITY IN BUSHELS	TOTAL PLANT CAPACITY IN BUSHELS	ELEV. SWITCH BY
Concrete	964,500	2,947,300	CNR
Concrete	1,093,400		
Concrete	610,400		
	2,668,300		
Concrete	936,000	3,276,500	CNR
Concrete	936,000		
Concrete	1,153,500		
	3,025,500		
Concrete	255,000	2,907,000	CNR
Concrete	470,000		
Concrete	1,856,000		
	2,581,000		
Concrete	350,000	6,080,000	CNR
Concrete	1,000,000		
Concrete	4,330,000		
	5,700,000		
Concrete	1,300,000	1,400,000	CPR
Concrete	1,300,000		
Concrete	1,300,000		
Concrete	2,150,000	7,700,000	CNR
Concrete	2,500,000		
Concrete	1,650,000		
	7,600,000		
Concrete	400,000	2,000,000	CNR
Concrete	520,000		
Concrete	1,000,000		
	1,920,000		
Concrete	2,670,000	2,250,000	CPR
Concrete	2,500,000		
Concrete	2,500,000		
	5,000,000		
Concrete	185,000	1,630,000	CPR
Concrete	532,000		
Concrete	813,000		
	1,530,000		
Concrete	499,000	4,000,000	CNR
Concrete	648,200		
Concrete	980,000		
	1,720,300		
Concrete	3,847,500	5,500,000	CNR
Concrete	1,500,000		
Concrete	1,500,000		
	2,000,000		
Concrete	5,000,000	6,500,000	CNR
Concrete	2,000,000		
Concrete	2,000,000		
	6,000,000		
Concrete	500,000	1,900,000	CPR
Concrete	1,000,000		
Concrete	1,500,000		
Tile	800,000	3,100,000	CNR
Concrete	1,125,000		
Concrete	230,000		
	845,000		
Tile	3,000,000	7,334,100	CNR
Tile	2,244,700		
Tile	2,244,700		
Tile	2,244,700		
Concrete	6,000,000	9,000,000	CNR
Concrete	2,100,000		
Concrete	8,100,000		
Concrete	497,800	3,055,000	CPR
Concrete	771,000		
Concrete	1,291,200		
	2,560,000		
Concrete	1,489,000	1,750,000	CPR
Concrete	920,000		
Concrete	750,000		
Tile	1,670,000	1,750,000	CPR
Tile	1,500,000		
Tile	1,500,000		
Concrete	1,400,000	5,000,000	CNR
Concrete	1,400,000		
Concrete	2,000,000		
	4,800,000		
Concrete	400,000	1,000,000	CNR
Concrete	500,000		
Concrete	900,000		
Concrete	2,500,000	8,250,000	CNR
Concrete	1,000,000		
Concrete	4,250,000		
	7,750,000		
Concrete	1,162,000	1,474,000	CNR
Concrete	1,162,000		
Concrete	1,162,000		
Concrete	1,766,000	7,861,000	CPR
Concrete	1,602,000		
Concrete	4,167,600		
	7,535,600		
	97,543,000	106,164,900	

COMBINED TOTALS FOR OPERATING GRAIN ELEVATOR COMPANIES

	Operating Statistics for Average 8 Hour Day																		
	NAME OF COMPANY	Work House Capacity in Bush.	Storage Capacity in Bush.	Total Plant Capacity in Bush.	Elevator Trackage		Car Unl. Equip.	Grain Cleaning Equip.			Grain Drying Equip.		Shipping Capacities		Mileage Rubber Belts				
Loads					Empties	Automatic Car Dumper		Hand Operated Shovel Pits	Screen Type	Cylinder Type	Special	No. Units	Capacity Bu. per Hr.	Boxcars Unloaded	Cleaning Capacity in Bush.	Boxcars Loaded	To Vessels Loading in Bush.	Conveyor Belts	Elev. Leg Belts
	CANADA MALTING CO. LTD.	279,000	2,668,300	2,947,300	51 Cars	51 Cars	1	3	12	4	1	1	1000	32	88,000	16	300,000	1.30	.70
	FEDERAL GRAIN LTD.	577,000	5,606,500	6,183,500	86 Cars	70 Cars	—	14	46	23	4	3	2000	102	194,000	36	700,000	2.91	1.31
	MANITOBA POOL ELEVATORS	660,000	16,520,000	17,180,000	195 Cars	199 Cars	2	17	52	55	3	4	3000	240	415,000	180	1,630,000	8.85	3.64
	MCCABE GRAIN ELEVATOR	580,000	2,670,000	3,250,000	68 Cars	68 Cars	—	20	19	18	2	2	1600	40	120,000	17	400,000	1.25	1.50
	NATIONAL	750,000	5,000,000	5,750,000	92 Cars	120 Cars	—	20	8	24	3	2	1500	75	180,000	20	584,000	2.60	1.20
	PARRISH & HEIMBECKER	100,000	1,530,000	1,630,000	29 Cars	29 Cars	—	2	3	5	1	1	400	20	12,000	24	280,000	.87	.20
	PATERSON'S ELEVATOR	152,500	3,847,500	4,000,000	40 Cars	40 Cars	—	8	14	8	—	2	800	40	44,000	16	320,000	1.42	.76
	RICHARDSON ELEVATOR	500,000	5,000,000	5,500,000	75 Cars	75 Cars	—	12	32	11	—	2	2000	90	80,000	15	500,000	2.30	1.20
	SASKATCHEWAN WHEAT POOL	3,586,000	32,553,100	36,139,100	649 Cars	642 Cars	12	54	121	121	19	6	4900	544	820,000	351	4,410,000	18.86	11.85
	SEARLE GRAIN CO.	300,000	5,700,000	6,000,000	119 Cars	104 Cars	3	10	17	22	3	3	2000	90	109,000	54	690,000	3.05	2.52
	UNITED GRAIN GROWERS LTD. ..	812,000	8,912,000	9,724,000	135 Cars	135 Cars	3	10	34	29	2	3	2000	120	188,000	82	850,000	5.55	2.08
	WESTLAND ELEVATOR	325,400	7,535,600	7,861,000	136 Cars	100 Cars	—	9	13	16	2	1	500	40	32,000	20	400,000	3.90	1.62
	TOTAL FOR LAKEHEAD HARBOUR	8,621,900	97,543,000	106,164,900	1675 Cars	1633 Cars	21	179	371	343	40	30	21,700	1433	2,282,000	831	11,064,000	52.86	28.58

LAKEHEAD HARBOUR GRAIN TERMINALS

STORAGE CAPACITIES

1965 SURVEY FIGURES

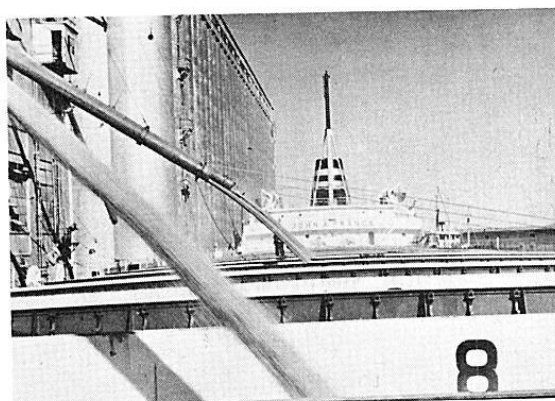
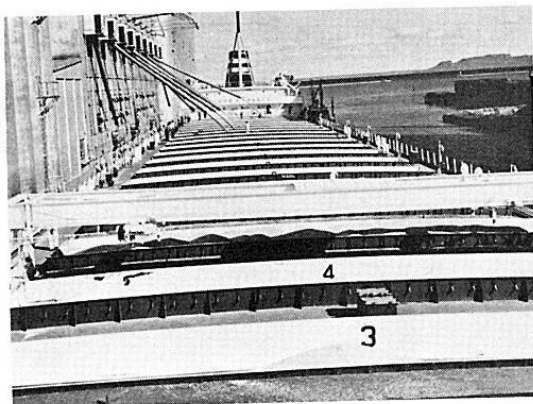
TABLE No. 2

ELEVATOR COMPANY	NO. OF PLANTS	WORKHOUSE CAPACITY IN BUSHELS	STORAGE CAPACITY IN BUSHELS	TOTAL ELEVATOR CAPACITY IN BUSHELS	PERCENTAGE OF TOTAL HARBOUR STORAGE
United Grain Growers Limited	2	812,000	8,912,000	9,724,000	9.2%
Saskatchewan Wheat Pool	8	3,586,000	32,553,100	36,139,100	34.0%
Manitoba Pool Elevators	4	660,000	16,520,000	17,180,000	16.2%
Federal Grain Limited	2	577,000	5,606,500	6,183,500	5.8%
Searle Grain Company, Limited	2	300,000	5,700,000	6,000,000	5.7%
McCabe Grain Company Limited	1	580,000	2,670,000	3,250,000	3.1%
Canada Malting Co. Limited	1	279,000	2,668,300	2,947,300	2.8%
Richardson Terminals Limited	1	500,000	5,000,000	5,500,000	5.2%
N. M. Paterson & Sons Limited	1	152,500	3,847,500	4,000,000	3.7%
Parrish & Heimbecker	1	100,000	1,530,000	1,630,000	1.5%
National Grain Company Limited	1	750,000	5,000,000	5,750,000	5.4%
Westland Elevators Limited	1	325,400	7,535,600	7,861,000	7.4%
TOTAL	25	8,621,900	97,543,000	106,164,900	100.0%

NOTE:

The total elevator capacities shown here are in accordance with data received on questionnaires and in some cases vary from the rated working capacities for Terminals.

In general, the trade considers 10% of space is required for normal handling operations which reduces the effective capacity to approximately 95,000,000 bushels.



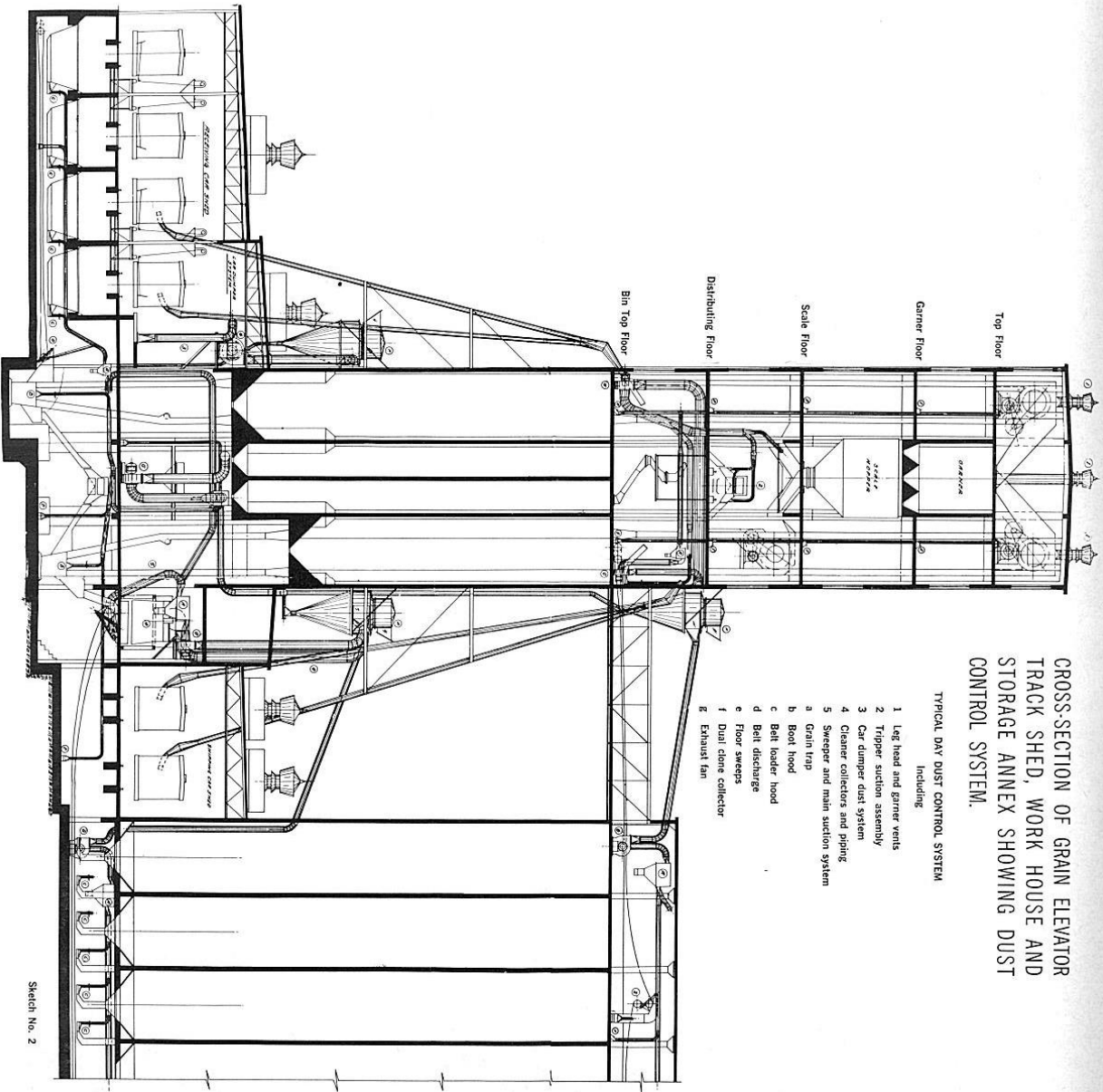
GRAIN BEING LOADED ON 730 FOOT VESSEL AT THE LAKEHEAD

CROSS-SECTION OF GRAIN ELEVATOR TRACK SHED, WORK HOUSE AND STORAGE ANNEX SHOWING DUST CONTROL SYSTEM.

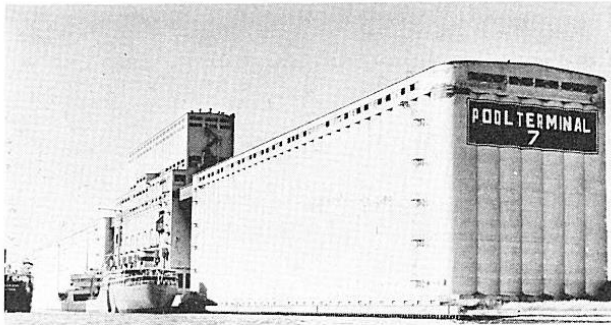
TYPICAL DAY DUST CONTROL SYSTEM

Including

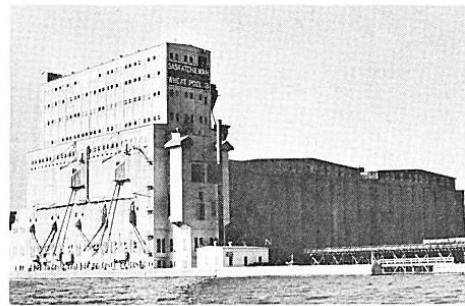
1. Leg head and garner vents
2. Tripper suction assembly
3. Car dumper dust system
4. Cleaner collectors and piping
5. Sweeper and main suction system
- a. Grain trap
- b. Boot hood
- c. Belt loader hood
- d. Belt discharge
- e. Floor sweeps
- f. Dual clone collector
- g. Exhaust fan



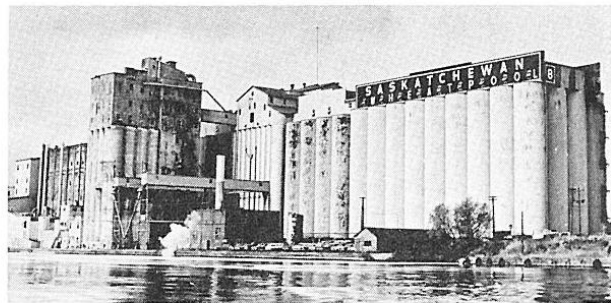
Sketch No. 2



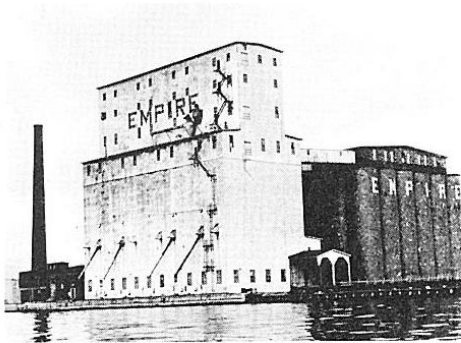
SASKATCHEWAN WHEAT POOL No. 7



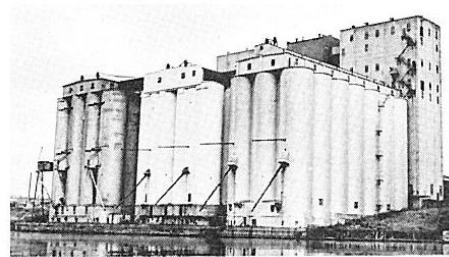
SASKATCHEWAN WHEAT POOL No. 6



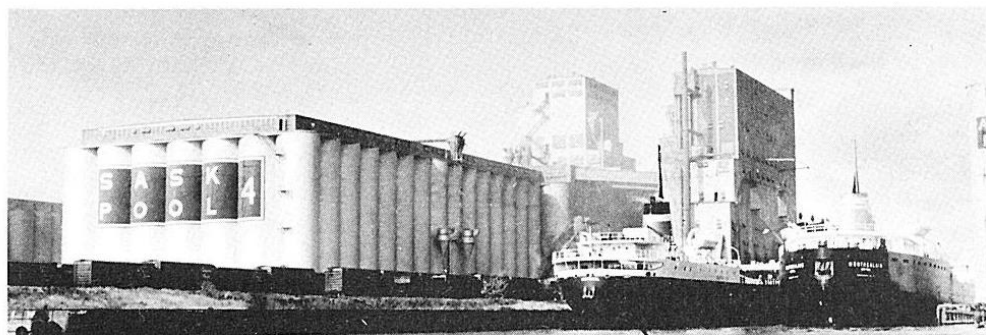
SASKATCHEWAN WHEAT POOL No. 8



SASKATCHEWAN WHEAT POOL NO. 12



SASKATCHEWAN WHEAT POOL No. 5



SASKATCHEWAN WHEAT POOL No. 4A & B

(9) **Carter Disc Machines of Strong Scott Design**

Carter Disc Machines for wheat and oat separation have been in use for many years in several plants. sixteen units are in service.

(10) **Eureka Receiving Separators of S. Howe Co. Design**

Machines of this design are in use in several Terminals. Twelve machines are in service.

FORECAST OF COMBINED POTENTIAL OF BASIC OPERATIONS AT OUR 25 TERMINAL ELEVATORS

Under entirely favourable operating conditions including weather, adequate rail movement to the Lakehead, availability of vessel space, etc., a fair estimate of what might be handled in a normal work day during the fall rush by our 25 Terminals would be as follows:

(1) **Railroad Trackage available at our Terminals and Car Unloading Potential**

Loaded cars spotted at Elevators (100% track full)—1675 cars all of which could be unloaded in a normal day's operation. Based on 2,000 bushels per car, 3,350,000 bushels per 8 hour day could readily be taken into the Terminals. On a conservative basic figuring three cars per hour for automatic car dumpers and one car per hour for hand operated shovel equipment the output would be 200 cars per hour for the 25 Terminals or approximately 1600 cars per 8 hour day. With five automatic car dumpers one of our largest Terminals has unloaded 283 cars in ten hours or 5.6 cars per hour per dumper.

(2) **Cleaning Potential**

Based on normal cleaning capacity of 287,000 bushels per hour the 3,350,000 bushels unloading from cars as above could be cleaned in 11 hours approximately. Cleaning operations, however, in grain Elevators can proceed on a 16 or 24 hour basis depending on the export requirements and the convenient availability of vessel space for shipment to Eastern Canada. On a 24 hour basis our Terminals' cleaning potential therefore is upwards of 6 million bushels with average grades and dockage content according to the survey data.

(3) **Shipping to Vessels Potential**

With vessel loading restricted to the normal eight hour day for the period April 15 to December 15, and not considering vessel movement delays, the combined shipping potential to vessels for the 25 Terminals based on 50% only of maximum capacity would be approximately 5.5 million bushels per eight hour day. This is about twice the 3,443,666 bushels per day record established in 1961. It was significant to note in passing that one single Elevator in one of our largest Elevator groups loaded onto a Great Lakes Bulk Carrier vessel 1,000,000 bushels in ten hours. It also demonstrated its ability to load 180,000 bushels to the same Great Lakes Bulk Carrier in a single hour and 550,000 bushels over a 4½ hour period averaging 122,000 bushels per hour on this occasion. Other Terminals have demonstrated their ability to load vessels at a comparable rate.

(4) **Shipping to Cars Potential**

Rail movement of grain subsequent to close of

navigation based on existing survey figures could proceed at a rate of 100 cars per hour or 800 cars per 8 hour day, approximately 190,000 bushels per hour, if market conditions required same and railway equipment was available. Under the most favourable operating conditions with 84 car loading spouts some elevator authorities point out that the above figures can be greatly increased.

(5) **Potential for Drying Grain**

Adverse weather conditions in Western Canada such as prevailed during the fall of 1965 stress the importance of having adequate facilities for drying grain. Our survey indicates that the Lakehead has available some 30 standard grain drier units with a combined capacity of 22,700 bushels per hour. This indicates a potential for drier use of ten cars per hour or 240 cars per 24 hour day, should wet and damp grain require treatment to reduce the moisture content of same and insure it was in warehousing condition.

Drier units in general are rated at from 500 to 1000 bushels per hour, based on an average of 5% moisture extraction.

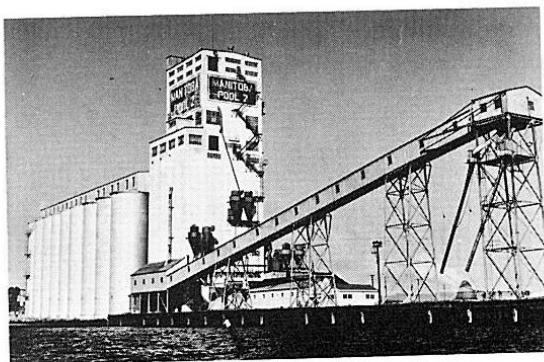
(6) **Dust Collecting Systems**

To eliminate the hazard of dust explosions and provide the best possible atmospheric working conditions for elevator employees, our Lakehead Elevators are equipped with the most modern systems of dust control. The movement of grain through the Elevator creates objectionable dust and to collect same wherever possible air suction is provided to collect dust particles and discharge same to dust collectors usually located on the exterior walls of the Elevator. The dust collectors separate out and retain the heavy particles of dust and the exhaust air discharges to atmosphere.

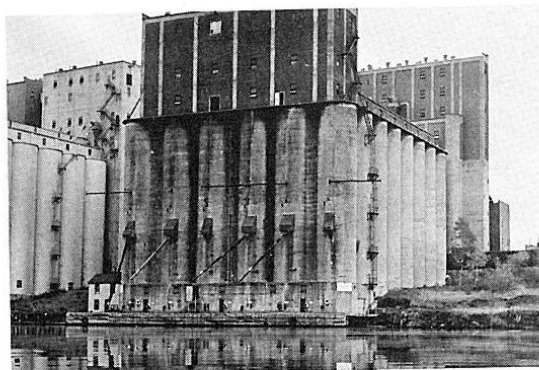
To illustrate the modern dust control system installed in a typical Lakehead Terminal Grain Elevator, your attention is drawn to sketch No. 2. This sketch clearly indicates the many locations of dust collecting equipment and the number of exhaust fans which provide the required air suction to operate the control system.

We would strongly recommend for those interested in the crop movement in Canada that they obtain a copy of the Canadian Wheat Board Bulletin No. 2 issued in

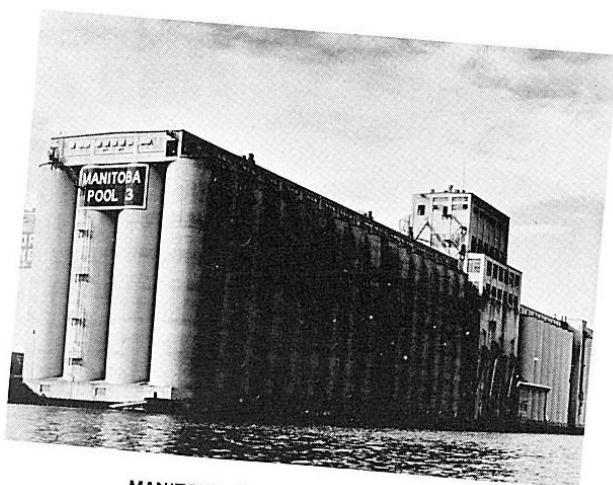




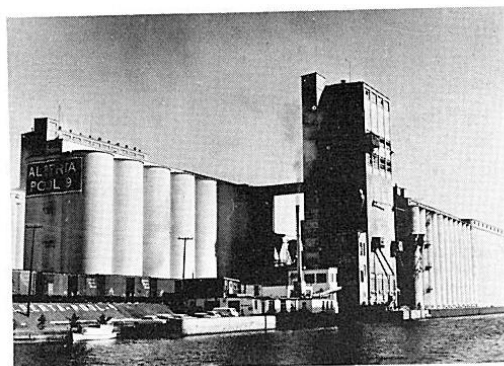
MANITOBA POOL ELEVATORS No. 2



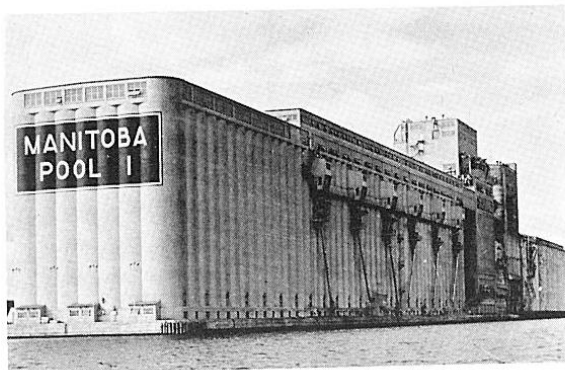
SASKATCHEWAN WHEAT POOL No. 10



MANITOBA POOL ELEVATORS No. 3



ALBERTA POOL TERMINAL No. 9
(OPERATED BY MANITOBA POOL ELEVATORS)



MANITOBA POOL ELEVATORS No. 1



CANADA MALTING CO. LIMITED

September, 1963, dealing with the storage, transportation and grading of grain in Canada. This informative bulletin gives capacity statistics for Elevators in the interior and at all ports in Canada and explains in detail the control exercised by the Board of Grain Commissioners in the operation of our Elevators under the Canada Grain Act. It describes also the grain movement from the farm to the ultimate consumer. It outlines the facilities provided to handle grain shipments in the country, at our Lake Ports and on the seacoast. It explains the official inspection system used

to establish the grade of grain under consideration so as to maintain the high standard enjoyed by Canadian grain in the markets of the world.

The duties of the Canadian Wheat Board set up by the Canadian Government are explained. (This Board controls the sale of all grains entering commercial facilities. It regulates the delivery of all prairie grown wheat, oats and barley from the farm to country Elevators using the quota systems to obtain the orderly marketing of the exportable crop.)

AUTOMATIC GRAIN SAMPLERS

The identity of every car of grain unloaded at our terminals is usually preserved until the weight and grade of same has been established by representatives of the Board of Grain Commissioners for Canada. When this information has been obtained the Elevator operator is permitted to route the grain to a storage bin containing grain of the equivalent type and grade.

To insure an official representative sample of the grain being obtained automatic sampling machines are in use in

all modern grain Terminals in Canada and the U.S.A. Small metal buckets on moving chains pick up samples from the stream of grain on the belt conveyor. Every receiving conveyor belt is equipped with this device.

Shipments out of Terminal Elevators are sampled continuously by similar automatic samplers or by an official of the Board of Grain Commissioners of Canada to insure that the shipment meets the grade specifications in every respect.

SUMMARY

The survey, in addition to tabulating the facilities available at all Lakehead Elevators for receiving, cleaning, drying, and shipping grain in transit to Ports in Eastern Canada and for direct shipping overseas, clearly indicates that the maximum potential for these operations, based on records already established, has never been fully realized.

It would seem apparent therefore that to insure an increased movement of grain through the Lakehead Har-

bour, more grain from Western Canada of the type required to meet the demand of world markets must be delivered to our Terminals. By maintaining a constant flow of cars to our Terminal Elevators their combined unloading capacity will be greatly increased.

It is equally important that adequate vessel space be made available to enable shipping operations to proceed at a speed in keeping with car deliveries over rail transportation.

SCHEDULE OF CLEANING EQUIPMENT INSTALLED IN LAKEHEAD ELEVATORS

1965 Survey Data

Table No. 3

(1) Huntley Manufacturing Co. Receiving Separators (Screen Type)

1. Style No. 11B
2. Style No. 10B
3. Style No. 9B

Flax Separators (Screen Type) Style No. 8A

Screening Separator (Screen Type) Style No. 9A

(2) Superior Separator Co. Equipment

1. Style No. CC16A—No. 8 Terminal
No. CC12A—Indent Cylinder Types
2. Style No. S-6—Screen Types
3. Width Graders
4. Fractionating Aspirators—Destoners

(3) Hart-Emmerson Uniflows No. 44 and No. 45 —Indent Cylinder Type

(4) Carter Disc No. 5—Strong Scott Co. —Disc Type

(5) Destoners—Kipp Kelly Co.

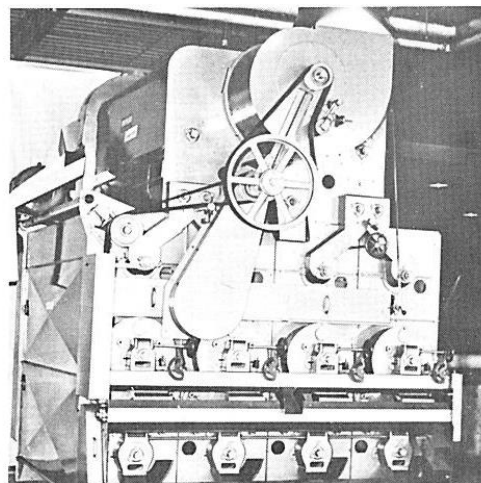
(6) Eureka Receiving Separators—S. Howe Co.

(7) Threshers—Woodside Bros.

NOTE:

Above schedule based on questionnaire completed 1965.

Superior Grain cleaning machine of the type used in Terminal Elevators



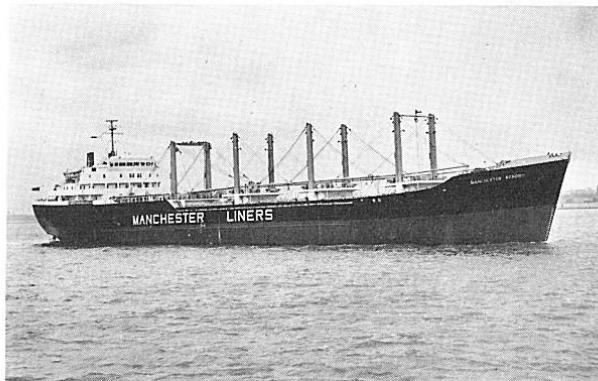
*Both Lake and Salt Water Vessels
Call at the Lakehead Terminals*



M. V. "RED WING," Upper Lakes Shipping Ltd., Toronto, Ontario



M. V. "PROSPERO"
Bowring Steamship Ltd., London, England



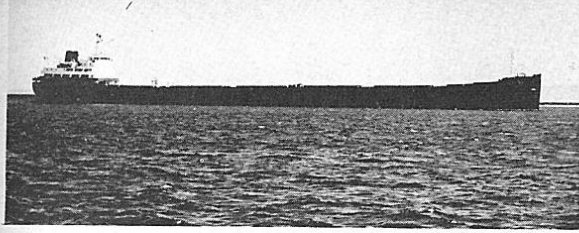
M. V. "MANCHESTER RENOWN"
Manchester Liners Ltd., Manchester, England



M. V. "SIR DENYS
LOWSON"
Algoma Central & Hud-
son Bay Railway Com-
pany, Sault Ste. Marie,
Ontario



S. S. "GROVEDALE"
Westdale Shipping Limited, Montreal, Quebec



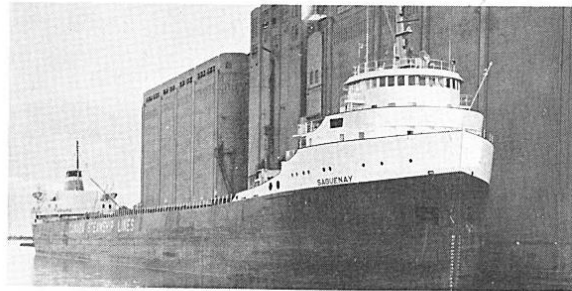
M. V. "SILVER ISLE"
Mohawk Navigation Co. Limited, Montreal, Quebec



M. V. "LAWRENCE-CLIFFE HALL"
Hall Corporation of Canada
Montreal, Quebec



M. V. "JOHN A. FRANCE"
Scott Misener Steamships Limited
St. Catharines, Ontario



M. V. "SAGUENAY"
Canada Steamship Lines Limited, Montreal, Quebec



S. S. "COMEAUDOC"
N. M. Paterson & Sons Limited, Fort William, Ontario



S. S. "HAMILTONIAN"
Papachristidis Co. Ltd., Montreal, Quebec



S. S. "MENIHEK LAKE"
Carrière, Limited, Montreal Quebec

Mapping it Out continued from page 8

Canadian provinces and be reasonably in line with government support of major public university systems in the United States. As with other publicly-funded sectors, the best measure of underfunding remains just such a comparison with the national average of provincial investment, one which enables the government to make informed decisions about reductions or, indeed, new investments. This measurement should also be an important benchmark for Ontario taxpayers, alerting them to the fact that, relative to other jurisdictions, fewer of our per capita tax dollars are invested in universities. By this measure, Ontario universities are underfunded by approximately \$500 million.

The staggering void left by this loss of hundreds of millions of dollars has been felt by every student in every Ontario university. Services, facilities and resources throughout our university campuses -- from learning resources such as those available through our university libraries to student support programs through to classroom and laboratory facilities -- have been negatively affected by the cuts. Our universities have also had to reduce faculty and staff to meet reduced budgets. Compared with 1990 levels there has been a province-wide reduction of 1,050 full-time faculty, despite an increase of 8,000 full-time students in that same time period.

Public investment in postsecondary education has been rapidly declining at a time when the need for higher education and knowledge-based industries is growing. Ensuring excellence in teaching, research and learning is the best way to help secure the future for our students and society at large. If it wants to achieve its own stated desires, the government of Ontario must increase its financial commitment by raising the funding of Ontario universities to the benchmark of the national average.

Bonnie Patterson is president of the Council of Ontario Universities.



LAKEHEAD UNIVERSITY, APRIL 1998

6TH ANNUAL CHEMICAL ENGINEERING CONFERENCE

March 21, 1998



Lakehead's annual Chemical Engineering Conference just keeps getting better and better.

This year 82 people registered in the conference which is organized by the Lakehead University Student Chapter of the Canadian Society for Chemical Engineering (CSCHE).

Registrants included students, alumni, practising engineers, community members, and representatives from industry and from the Northwestern Ontario Regional Cancer Research Centre. As well there were registrants coming from other departments on campus (Chemistry, Mechanical Engineering, NAPE and Social Work) and from local and regional high schools.

The morning session featured remarks by faculty advisor Dr. I. Nirdosh; student chapters representatives Kathy Strapac and Colin Gilbert; Chair of the Department of Chemical Engineering Dr. Allan Gilbert; and President John Whitfield.

The rest of the session was devoted to technical presentations by students (Abebe Habte Gabre, Nathan Latour, Colette Lepage, Kristine Morgan and Walter Turek) covering a variety of topics such as pulp and paper, biomedical engineering, oil sands and process control.

The highlight of the afternoon session was the keynote address entitled "Life-long Learning, Continuous Professional Development" given by Maja Veljkovic, president of the Canadian Society for Chemical Engineering.

The Conference allowed the Student Chapter members to interact with Veljkovic and the other participants as well as to build contacts and make friends. Evening activities included dinner at the Calabria Restaurant and a TBSO performance of *The Merry Widow*.

-- taken from a report on the Conference prepared by Dr. I. Nirdosh.

The Humanities and Social Sciences Federation of Canada has announced that the *Congress of the Social Sciences and Humanities*, formerly known as the Learned Societies Conference, will be held May 27 to June 6, 1998 at the University of Ottawa. The Congress brings together some 7,000 researchers from across Canada with representation of over 1,000 participants from outside the country and from all five continents. <http://www.hssfc.ca>

FUND RAISING FOR ELECTRONIC ACCESS

by Frances Harding

If you are fortunate enough to own a laptop computer you can use the "wired" study carrels in the Library to access the Internet. But what if you don't have a computer?

"Then you're forced to spend a considerable amount of time doing research using print indexes," says Chief Librarian Anne Deighton, "and that's the problem we are trying to address."

In late March, Lakehead University launched a campaign to raise \$300,000 to improve electronic access in the Chancellor Paterson Library. The goal is to secure the hardware and software necessary to enable students to access the increasing amount of data now available through the Internet.

Lakehead's wish list includes 20 PCs (plus computer tables and chairs) for the Student Lab on the third floor; equipment to upgrade the Library's Automated Catalogue; as well as a variety of products to improve circulation, public access, and electronic resource management.

"Students expect a technologically proficient library; one that takes full advantage of the access to information provided by new technology," says Deighton. "At present, there are no computers available for students to view electronic journals or other paid Internet resources in the Library."

Currently, the Library maintains a print reserve and examination collection where high-demand items are signed out for a shorter loan period. In most cases, these print items must be viewed in the Library, one item at a time, during Library hours only. With a scanner, these items could be converted to electronic form and made available to students through the Internet. This would allow for greater access at any time of the day or night, from any location including residence.

Among the companies currently being approached for donations are the building suppliers and contractors involved in the renovations. To date the University has received nearly \$37,000 in gifts and pledges. If you would like to make a gift, please contact Anne Deighton at 343-8205.



A team of volunteers has joined faculty and staff to raise \$300,000 for Electronic Access in the Chancellor Paterson Library. Front row (l-r): Marv Detweiler, Manager, Northwestern Business Banking Centre, Royal Bank of Canada; Anne Deighton; Beverley Brucha, Chief Librarian, Thunder Bay Public Library; Dr. Mike Richardson. Back row (l-r) Dr. John Whitfield; Bob Angell; Joe Logozzo, President, Iron Range Bus Lines; Fred McIntosh, former Lakehead Chief Librarian; Robert Paterson, N.M. Paterson and Sons; Brian MacIvor, Cheadle Johnson Shanks MacIvor; Rob Zuback. Absent: Margaret MacLean

CONSTRUCTION FOR THE FINAL PHASE OF RENOVATIONS BEGINS JUNE 8

The final phase of the renovations to The Chancellor Paterson Library is set to take place during this summer and will be completed by September. This Library renovations project began in 1993 and will end this summer with a completely remodelled library.

You can view the plans for the new main floor entrance in the Lobby Area of The Chancellor Paterson Library.

To prepare for the final phase of renovations to The Chancellor Paterson Library, there will be a number of moves over the next few months.

- * These service points and collections will move to the Ground Floor during renovations to the Main Floor:

Information Desk	CODOC Collection
Circulation Desk, Reserves	Reference Collection
Interlibrary Loans Office	Search Services Office
Online Catalogue terminals	ERL and Stand-Alone Workstations
Public Library Computer	FirstSearch Workstation
Current Contents Workstation	Photo Identification

- * The front doors of the Library will be closed once the Circulation Desk is moved to the Ground Floor. The Shipping and Receiving Doors will become the main entrance to the Library. Watch for announcements of this temporary change.
- * Periodicals will move from the Third Floor to the Second Floor as soon as examinations are completed. Current issues will be moved to the new Current Issues Reading Room by September.
- * Books A to L on the Ground Floor will move to the Third Floor.
- * Microforms will move from the Main Floor to the Second Floor during renovations to the Main Floor.

The Library will keep you informed of moves and changes with signs, posters and updates in this column.

LAKEHEAD UNIVERSITY

APRIL 1998

INTRODUCING DARWIN.

Announcing an evolutionary leap over all lower forms of workstations. Darwin. A full-fledged Sun™ workstation

(with an up to 300MHz processor, no less) that'll run all your favorite PC apps while delivering the power,

scalability, networkability, and robust UltraSPARC™/Solaris™ performance

you've come to expect from Sun. And all for just \$3,960*. (Roughly the price

of a PC running Microsoft® Windows® NT.®) With Darwin, you can run heavy-duty

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A WHOLE NEW SPECIES OF WORKSTATION.

NORTHWESTERN ONTARIO WRITERS WORKSHOP (NOWW)

Author Janis Rapoport will be in Thunder Bay to give a reading on Friday April 24 at 8 pm at Rumours Dining Room Confederation College. (Admission is free.) The next day, Saturday, April 25 from 10:15 a.m. to 12:45 p.m. at the Waverley Resource Library she will give a workshop titled "The Best Things I know About Writing" (\$10 for non-members, free to members).

Janis Rapoport, a creative writing instructor at the University of Toronto, has held writer-in-residence positions at several Canadian libraries, and has for many years been an avid promoter of Canadian literature. In recent years, she has been on the forefront of establishing ties between Canadian and Israeli writers and publishers, and is currently on the executive of the Writers Union of Canada.

NETNOTES

Maclean's website (www.macleans.ca) has a writer-in-electronic-residence program to link online readers with Canadian writers.

Each month, a different writer presides (poet Susan Musgrave was the first), initiating weekly topics for online discussion, short essays and/or opinions on literary issues. Writers to follow in coming months include Richard van Camp, Ann Ireland, Leon Rooke, Andrew Pyper, Robert J. Sawyer, Howard Engel, Austin Clarke and Eden Robinson. Behind it all is Writers in Electronic Residence (WIER), a program in which Canadian authors use the Internet to connect to students at all levels in writing classes and libraries across Canada. Working online from their homes, the authors critique writing and make suggestions for further reading to students and teachers in schools across the country. WIER's own website is at www.edu.yorku.ca/WIERHome.html

The Agora
is published on the 15th of
every month.
We encourage you to send in your
news. Deadline for the May issue is
May 6, 1998

MEMBERSHIPS TO THE C.J. SANDERS FIELDHOUSE

Although the main gym and the track will be the only facilities available from April 27 to August 30, 1998, memberships for full-time faculty, staff and their families will be available May 1, 1998.

As of May 1, 1998, only full-time faculty and staff of Lakehead University are entitled to free memberships.

Proper Lakehead identification indicating full-time status will be required to obtain a membership.

For further information
call Sharon Kozak at 343-8213.



Mark your calendar

for the following

**OSOTF
DRESS DOWN DAY**

May 8, 1998

THE CHANCELLOR PATERSON LIBRARY

Extended hours will apply from March 13 until April 23, 1998

Monday to Thursday

8 a.m. to 11:30 p.m.

Friday

8 a.m. to 10 p.m.

Saturday

10 a.m. to 9 p.m.

Sunday

12 noon to 11:30 p.m.

Note: Friday, April 24, the Library will be open from 8 a.m. to 5 p.m.

INSTRUCTIONAL DEVELOPMENT WORKSHOP

May 5-6, 1998
Regional Centre Room 2003
For information contact
Ken Brown
Instructional Development Advisor
343-8114

Agora

April 1998

Vol. 15, No. 4

Agora is published by the Information Office of the Department of Student Services and Community Relations. The newsletter is distributed monthly (except for July and August) to faculty, staff and friends of Lakehead University.

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