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FRONT COVER.

CANADIAN NATIONAL'S FAMOUS STEAM LOCOMOTIVE 6060 on one of its numerous special excursions, as depicted by New Brunswick artist Cameron King.

INSIDE FRONT COVER.

A STUDY IN FIRST AND SECONG GENERATION CABS with one of each manufacture. C.N. 2544 and 9178 with snowplow shields are seen at Stratford Ontario on March 22 1980. With much of the C.N. shops shut down, this view is becoming quite rare.

Gordon R. Taylor.

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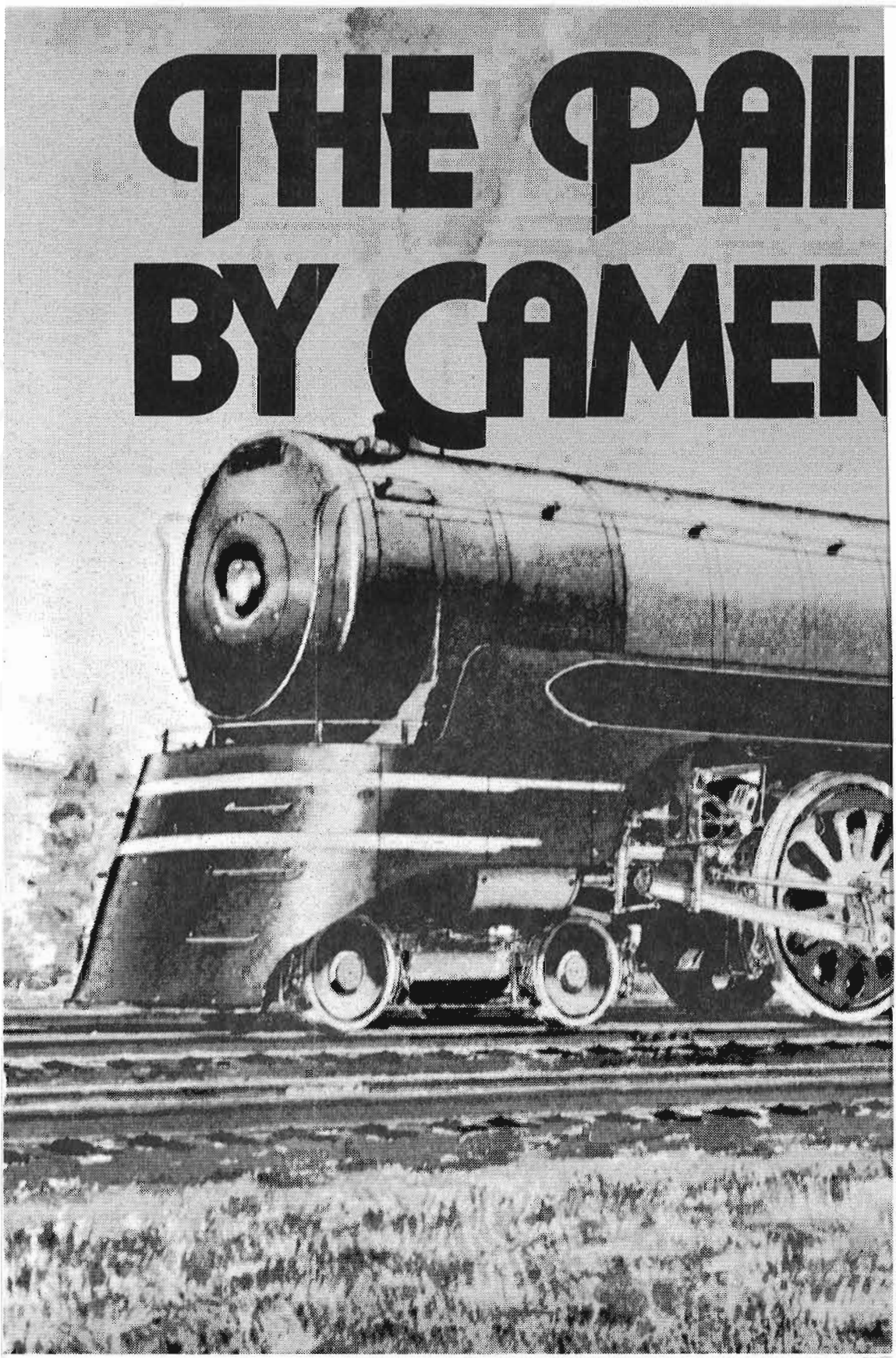
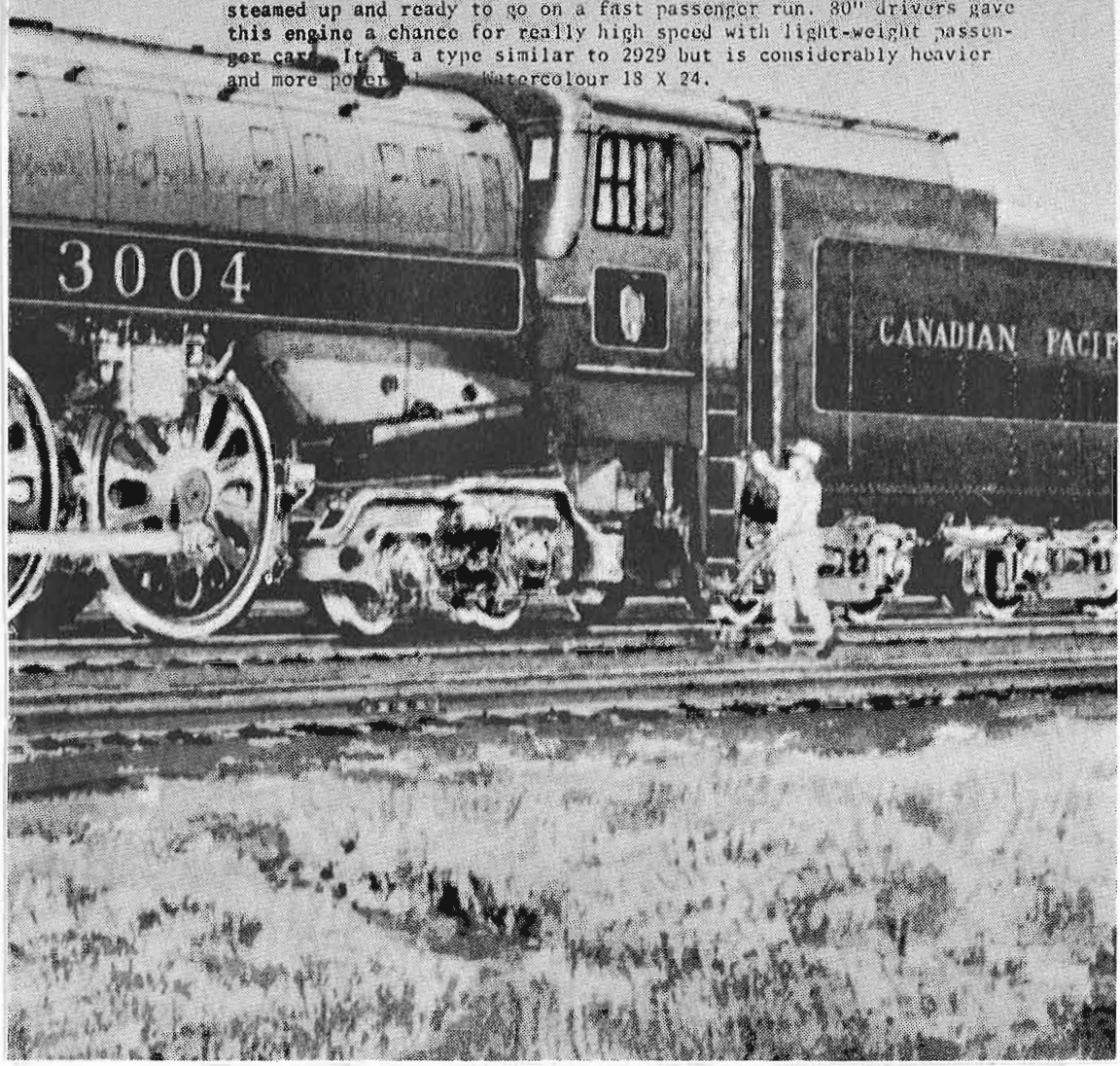
THE RAIL
BY CAMER



HTINGS
ON KING



READY FOR HER RUN, C.P.R. 3004. A semi-streamlined 4-4-4 all steamed up and ready to go on a fast passenger run. 80" drivers gave this engine a chance for really high speed with light-weight passenger cars. It is a type similar to 2929 but is considerably heavier and more powerful. Watercolour 18 X 24.

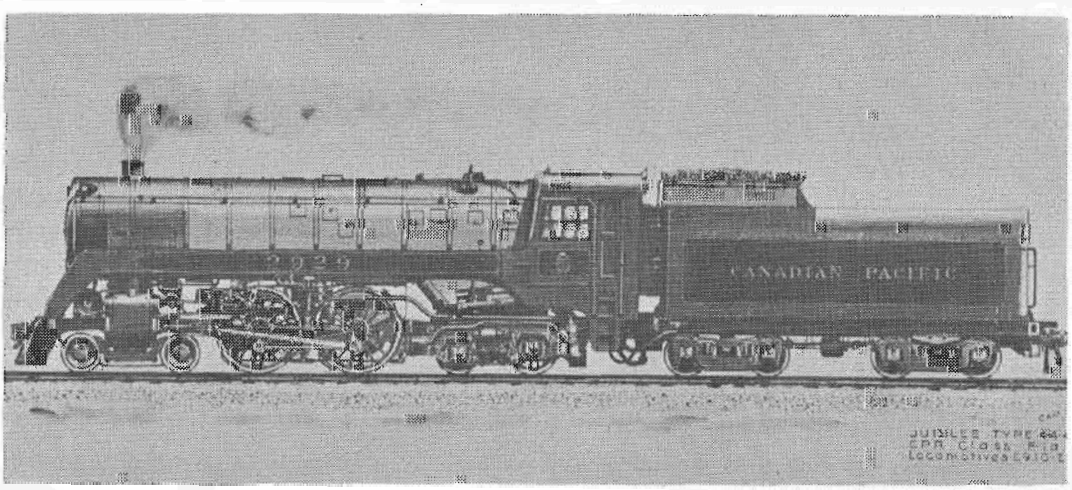
THE PAINTINGS BY CAMERON KING

It is a great pleasure to be able to show a selection of steam locomotive paintings by Cameron King of Fredericton N.B.

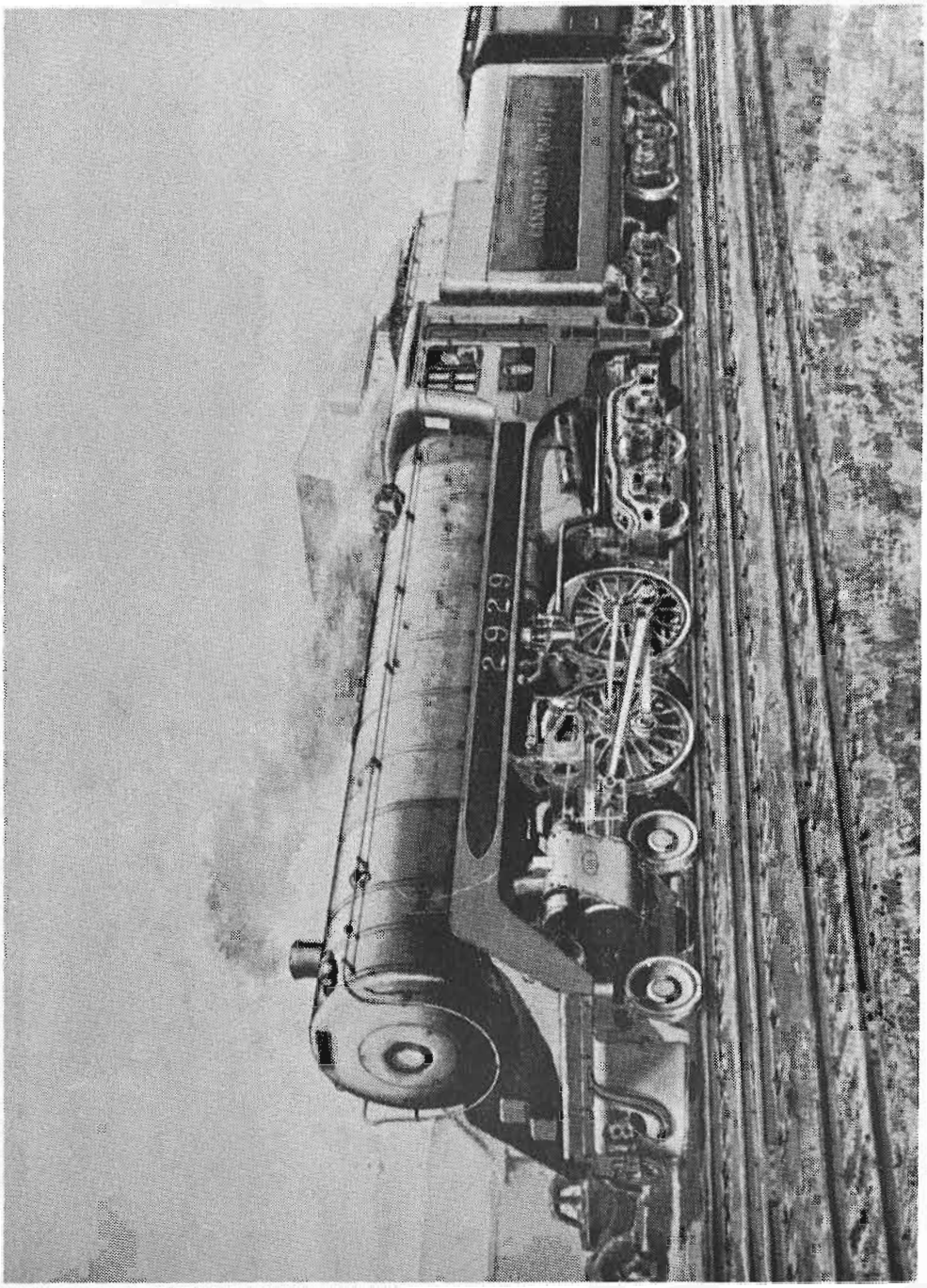
Mr. King was born in Plaster Rock N.B. in 1915, and graduated from the University of New Brunswick in 1936 with a B.Sc. degree in Civil Engineering. From 1937 to 1939 he worked for the N.B. Highway Department and later for the Aluminum Company of Canada except for two years in the R.C.A.F. during the war. In 1946 he joined the Chief Engineer's office of the C.P.R. and was Senior Engineer in charge of special trackwork at the time of his early retirement in 1975. He then moved to Fredericton, and from 1976 to 1980 worked for the N.B. Department of Natural Resources.

Cameron King is a member of the Fredericton Society of Artists, and in 1980 and 1981 has had exhibitions of his works at the University of New Brunswick. Most of the paintings shown here were at the latter exhibition held at the U.N.B. Alumni Memorial Centre from May 17 to May 31 1981.

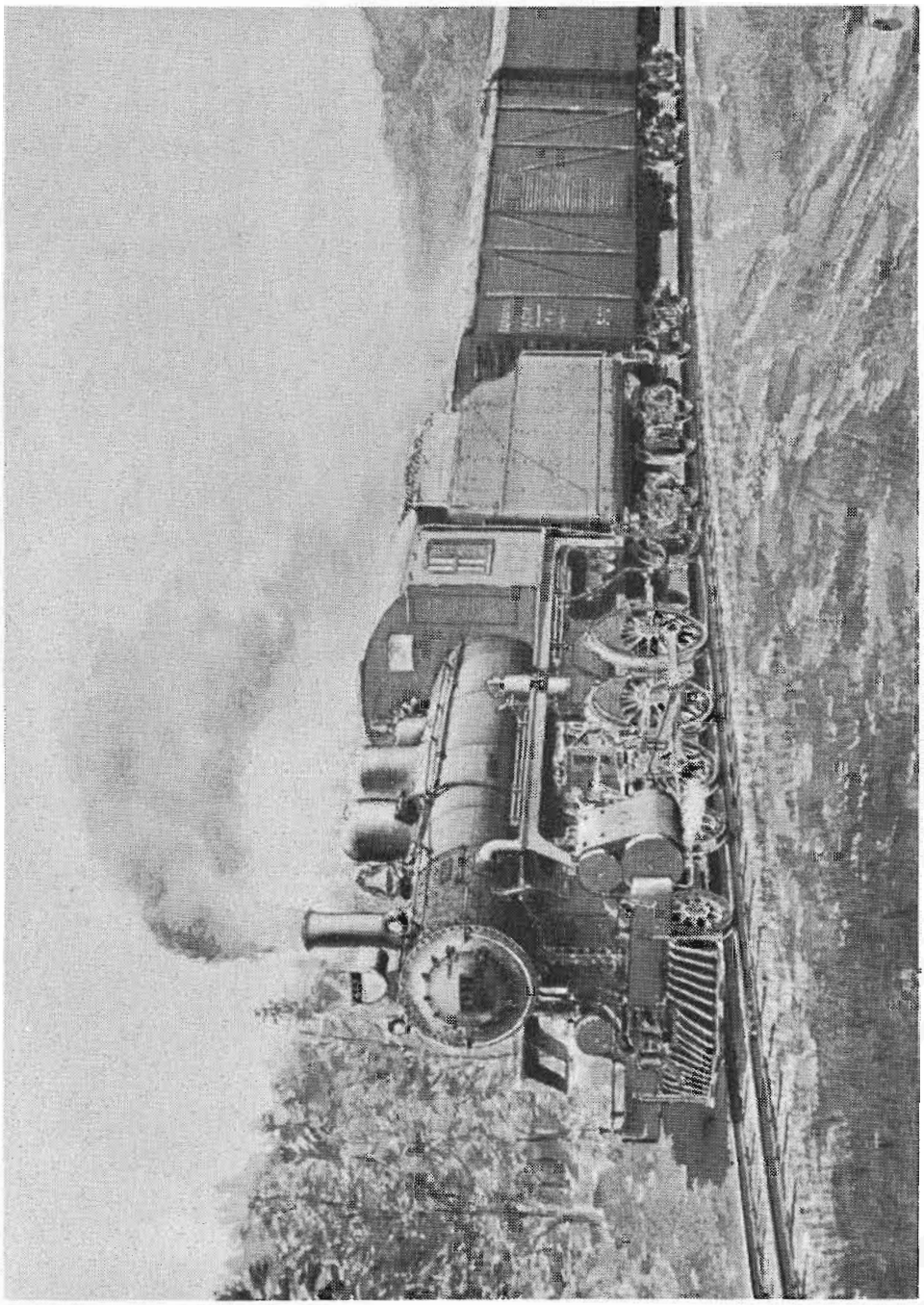
The artist has depicted these locomotives in what he considers typical views and landscapes, and he has emphasized the detail which he considers essential to portray the steam locomotive as a live working machine, monstrous, noisy and, in the eye of the artist, a thing of beauty.



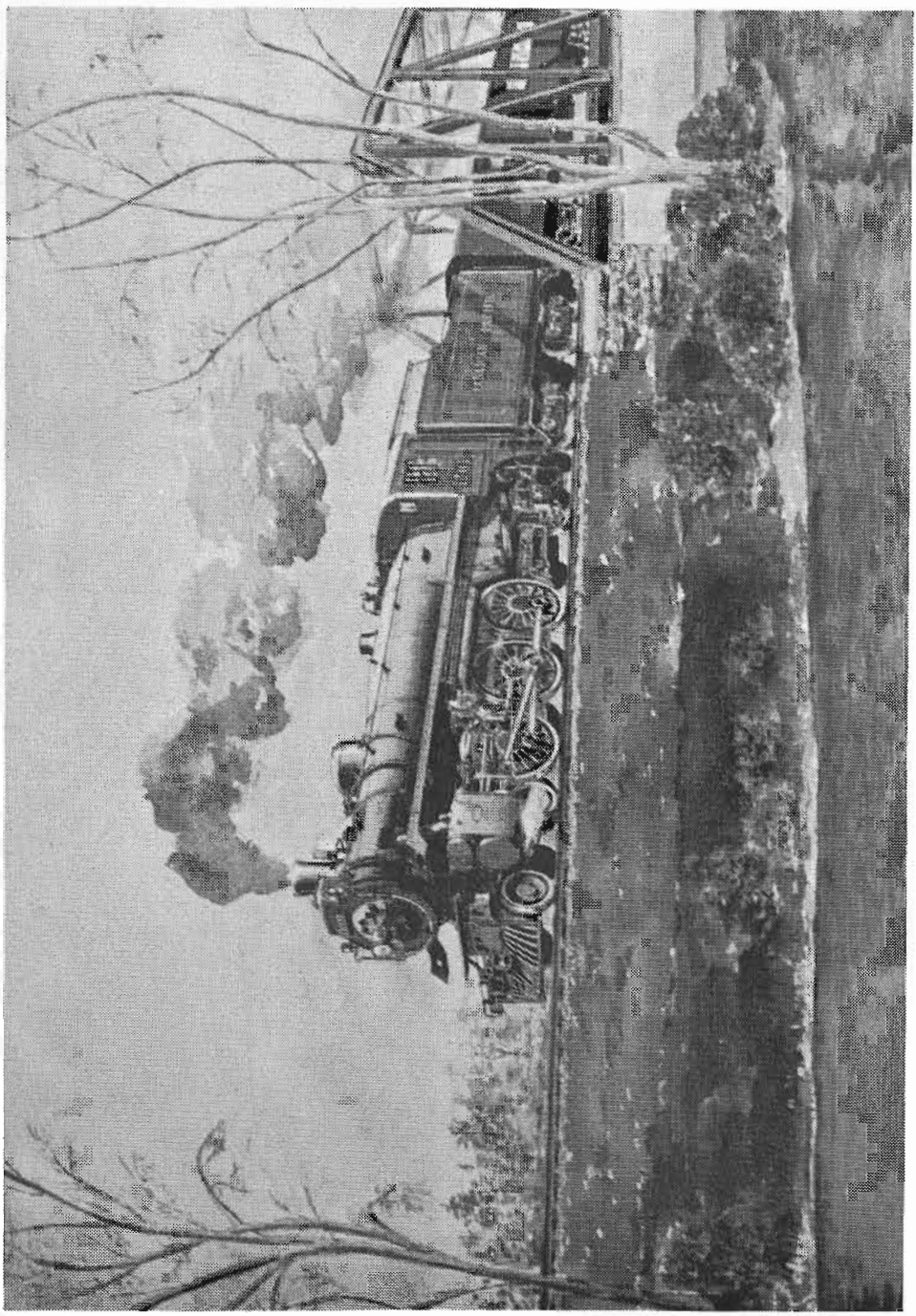
A DETAILED BROADSIDE VIEW OF C.P.R. 4-4-4 No. 2929.



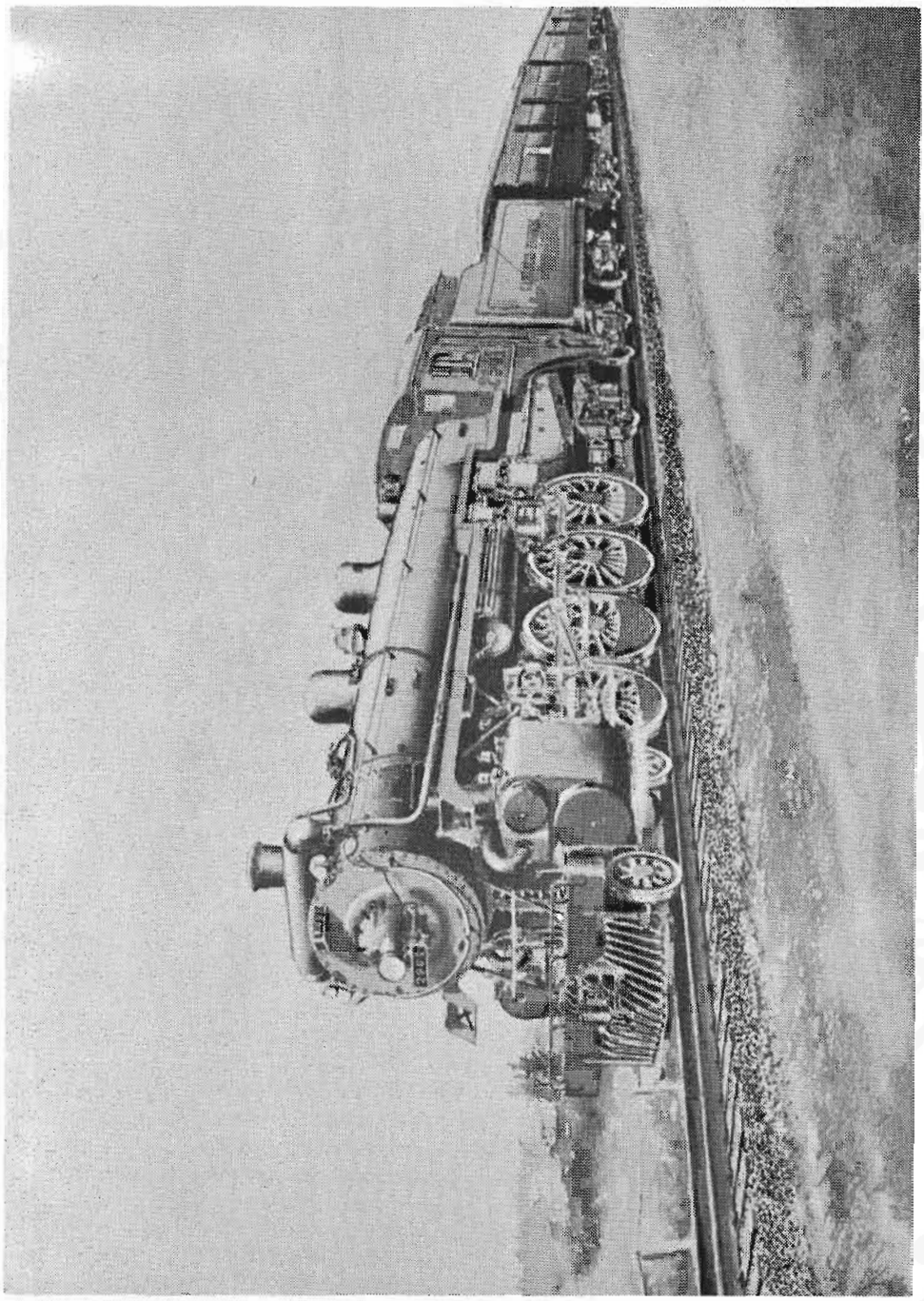
ARRIVAL AT FREDERICTON, C.P.R. 2929. After her run in after meeting the Montreal or Boston trains at Fredericton Junction.
Watercolour 18 X 24.



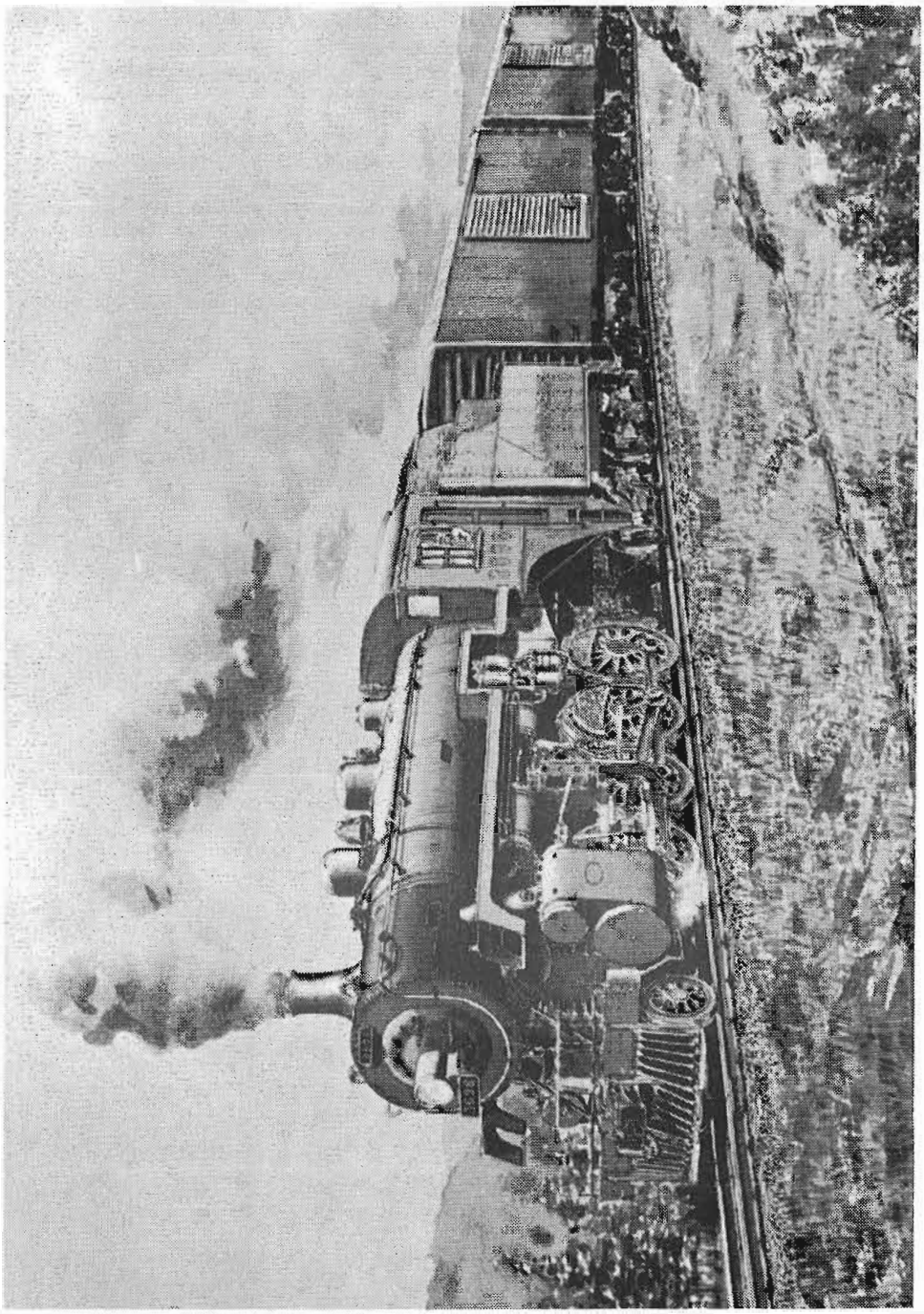
BRANCH LINE, C.P.R. 422. This ten-wheel typical "tea Kettle" operated freight or mixed trains on branch lines either with light traffic or where track or bridge conditions limited weight of motive power. Watercolour 18 X 24.



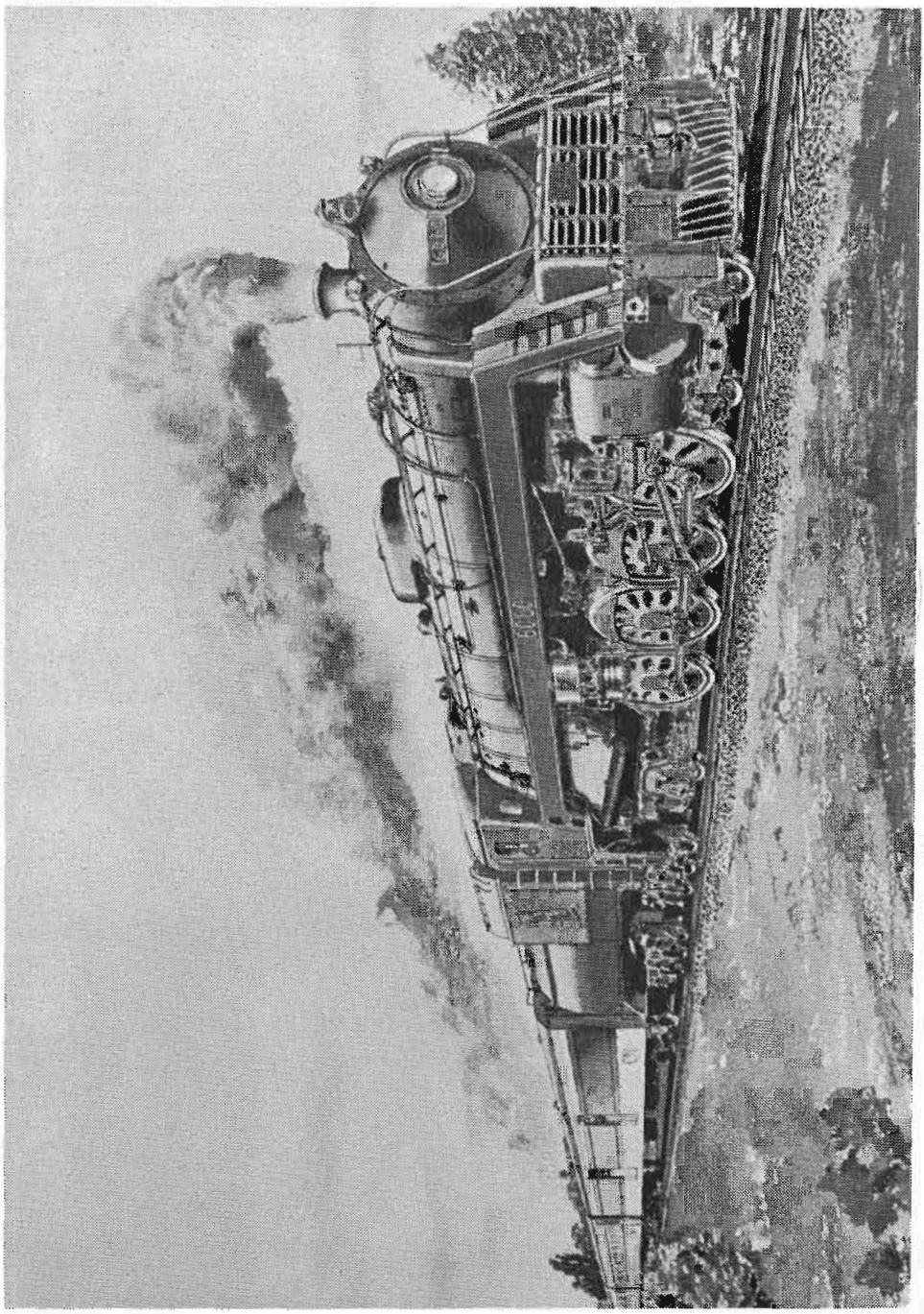
STEAM EXCURSION, C.P.R 1201. This light Pacific engine is shown on a steam excursion organized by the Museum of Science and Technology in Ottawa. Watercolour 21 X 28.



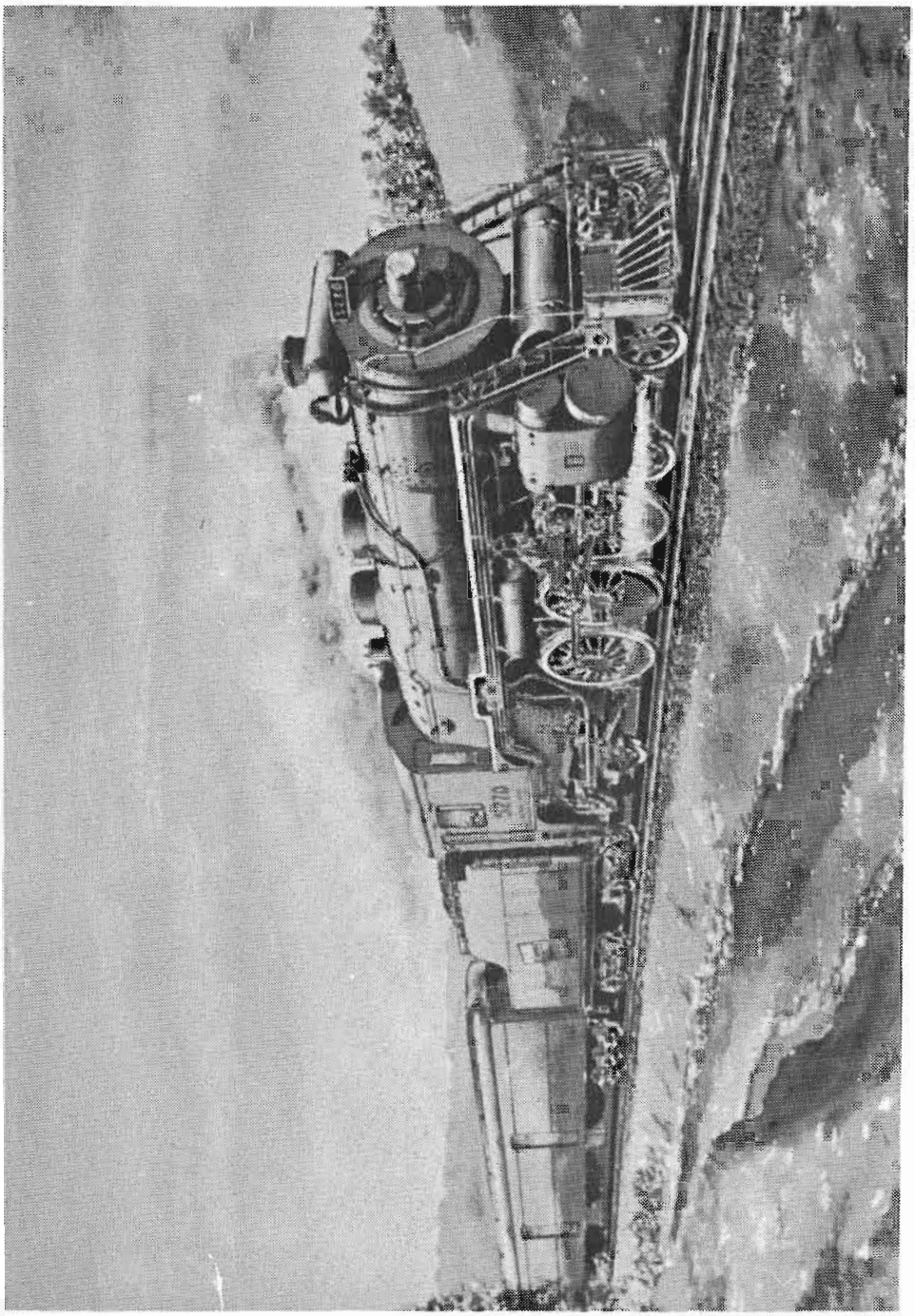
THE ATLANTIC LIMITED, C.P.R. 2901 NEAR FREDERICTON JUNCTION. This Mountain-class locomotive operated for a number of years on the Saint John to Montreal train. Watercolour 18 X 24.



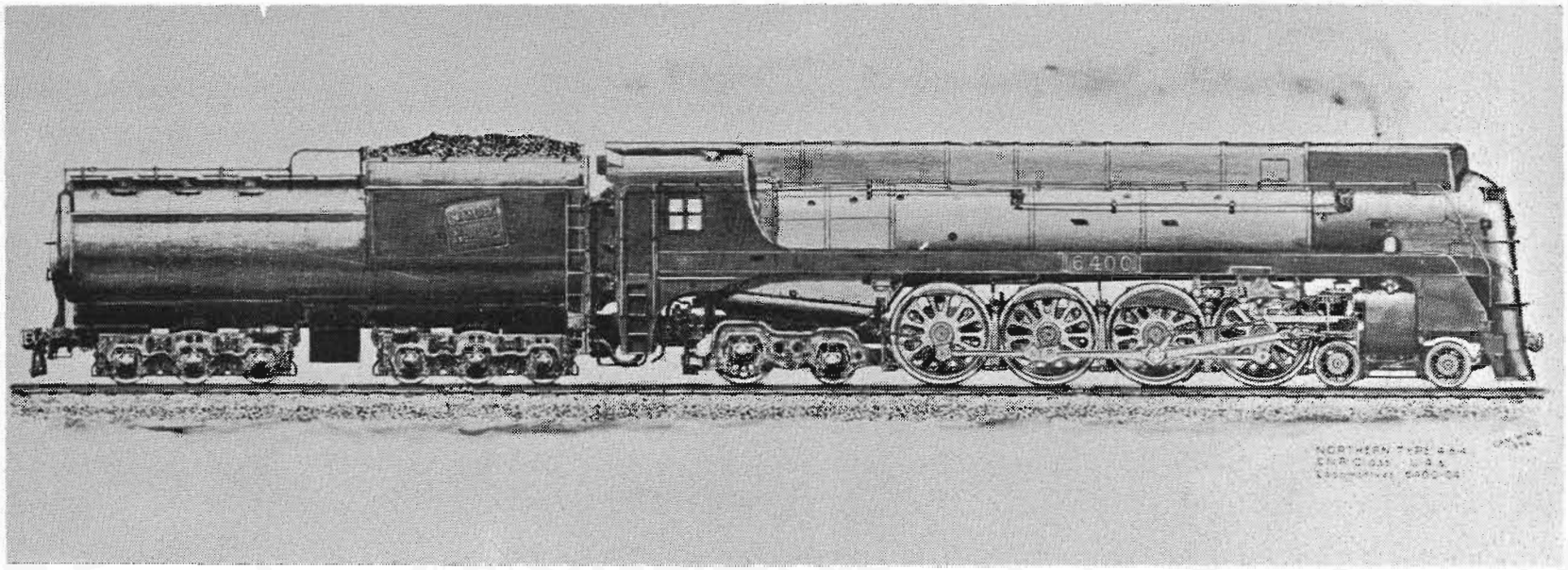
FREIGHT TRAIN, C.P.R. 3696. This consolidation-class engine operated on the Bayshore. Watercolour 18 X 24.



STEAM EXCURSION 1973, C.N.R. 6060. Her first excursion after being refitted was in 1973. She went west to Alberta in 1980. Watercolour 18 X 24.



C.N.R. 5270 WITH PASSENGER TRAIN. This engine is now on display at Centennial Park, Moncton N.B. Watercolour 18 X 24.



A DETAILED BROADSIDE VIEW OF C.N.R. NORTHERN TYPE 6400.

Eastern Gateway to Western Resources.

By Kenneth A. W. Gansel

Thunder Bay Terminals Limited, located in Thunder Bay, Ontario serves as the gateway for coal from Alberta and British Columbia moving to industries in Eastern Canada. The major user of the coal is the giant coal fired thermo generator station of Ontario Hydro at Nanticoke, Ontario. Ontario Hydro in fact purchased the locomotives and coal cars for both CN and CP just for bringing the coal from the West to Thunder Bay where it is shipped by ship to Nanticoke on Lake Erie.

Thunder Bay Terminals is a wholly owned subsidiary of Federal Industries Limited of Winnipeg. Federal owns such companies as The White Pass and Yukon Corporation Limited and the Neptune Bulk Terminals in Vancouver, the counter part to the Thunder Bay operation.

Construction of the Terminal began in 1975 and became operational in 1978. The purpose of the Terminal was to establish a transportation link between rail and water to satisfy the movement of western Canadian coal.

During the construction of the Terminal, an expansion was undertaken to receive Saskatchewan LIGNITE for unloading and shipping by way of an underwater tunnel to the Ontario Hydro generator station situated on Mission Island.

The Terminal is located on the 236 acre McKellar Island within the city limits of Thunder Bay and is bordered on the north by the KAMINISTIQUIA RIVER, and on the south by the McKellar River and the east by LAKE SUPERIOR. The Terminal is served by both CN and CP by means of a loop track which perimeters the property. The trackage is sufficient to accommodate one completely loaded 105 car unit train and an empty 105 car unit train without encroachment on the main line of CP Rail.

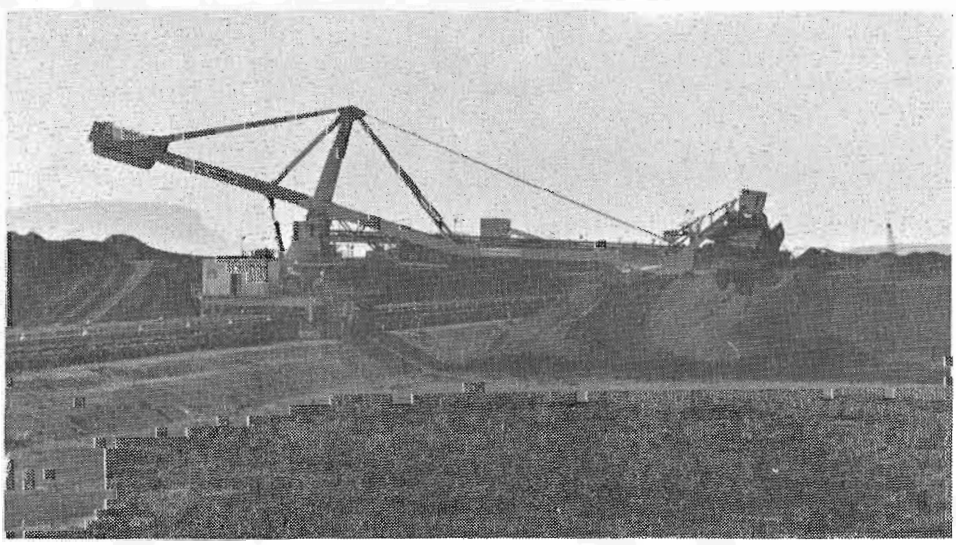
The accommodate the handling of each coal train, the unit train, powered by four 3000 H.P. locomotives, is brought through the Thaw Shed, with the first car being positioned either in the Thaw Shed or on the Dumper, using the locomotive power.

The Thaw Shed is 600 feet long and will accommodate 10 cars. During winter operation, the propane fired infrared heaters, with a total combined output of 50 million BTU's per hour, are ignited from the Dumper Operator's cab. Although the Thaw Shed with hold a total of 10 cars, there are only six heated bays. Large circulating fans continually equalize the ambient temperature and motorized vents located on the roof of the building are vented to atmosphere when temperatures reach 180°F. The circulating fans are necessary because all of the heat transferred is not by means of infrared, but a large portion of the heated air is conducted through openings between the ends of the cars to assist thawing in these difficult areas.

ON BOARD THE "CANADIAN TRANSPORT". The "Shiploader" is radio controlled by the foreman on board the ship. Note the sign in the left background showing 19,754 tons loaded so far.
Kenneth A.W. Gansel, June 1980.

With the first car spotted on the Dumper, the locomotive crews leave the site. The Dumper Operator takes complete control of the train by manually positioning the Positioner and inserting the indexing arm. The Positioner is driven fully forward until it hits the buffers, which also sequences the automatic positioning cycle. When the first car has been discharged by rototing the Dumper 160°, the Positioner traverses automatically in a reverse direction to pick up the next car, which is accomplished without uncoupling the cars. The Positioner automatically inserts its arm, then accelerates in the forward direction and advances the unit train exactly one car length. This positions the next car on the Dumper. Now the Dumper Operator can continue dumping cars semi-automatically by depressing two buttons on the control consol in the Dumper Operators cab. This cycling is repeated for each car of the unit train. During winter months, a sensing device detects the shorter length of the caboose as it approaches the Thaw Shed, and begins a process of automatically switching off the heaters with enough time delay to allow adequate cooling before allowing the Positioner to advance the next car.

Each car containing 100 tons of coal is discharged by means of a hopper under the Dumper onto a Pan Feeder. This Feeder resembles a bulldozer track six feet wide and 53 feet long. The Pan Feeder has two speeds resulting in a receiving rate of 4000 tons per hour on fast speed, and 2000 tons per hour on slow speed. The Pan Feeder, being made of steel, prevents damage from occurring as a result of large frozen blocks of ice and coal. From the Pan Feeder, coal is discharged through a transfer chute, which guides the material through a grizzly designed to scalp off the frozen lumps of coal while allowing the fines to drop straight through on to the conveying system. The large pieces not passing through the grizzly , are directed into the lump breaker which breaks them up into small pieces not exceeding eight inches in diameter.



RECLAIMER. Each bucket holds 10 tons, or 6000 tons per hour.
Kenneth A.W. Gansel, June 1980.

Dust control must be provided in the Dumper area for two reasons. First for protection of the environment and cleanliness of equipment and second, to prevent dust laden air from entering the Thaw Shed where an explosion could result while the Thaw Shed is in operation. For these reasons, dust-laden air is continually being drawn from within the dust shroud which envelopes the Dumper, using two dry type collecting units. A third unit services the lower levels of the Dumper building. The accumulated dust is conveyed by screws to a mixer where water or calcium chloride is added before the dust is deposited back into the mainstream of product flow.

A metal detector on the receiving system will stop the belt and spray a dye on the coal marking the location of foreign material. There is also a tear detection system that will stop the conveyor in case of damage to equipment.

To permit easy trouble shooting a multiplex system provides information directly to the Control Tower and records any shutdowns, indicates the type of trouble and its location. A mini computor records the defect, indicates the time of shutdown and again records the time when the system becomes operational.

There is a belt scale on the receiving system that gives a printed read-out at the Control Tower. This scale will produce an accurate total of inventory when the total of the shipping scale is subtracted.

While the coal is being transferred, a primary cutter traverses through the stream at an 85 second interval discharging the sample onto a separate conveying system which transports it to a sampler. The Sample Building is a separate structure with specialized equipment that is manned by an independent testing company.

The Yard Conveyor is installed on an elevated berm an extends some 4000 feet to a Surge Bin. There is a second tear detector system that will stop the Yard Conveyor and will annunciate on panels at several locations.

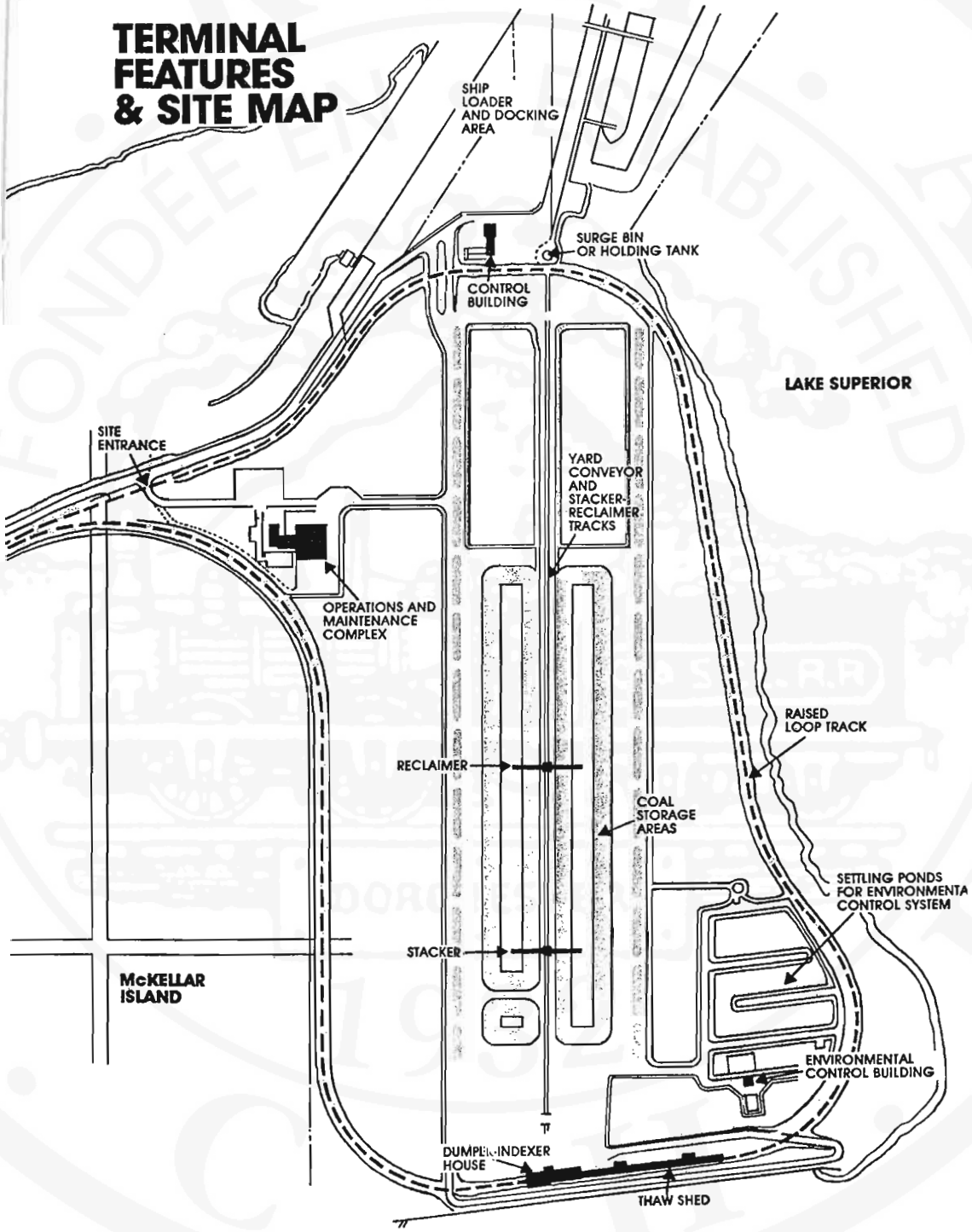
The raised berm also serves as a runway to carry the tracks that are common to both the Stacker and Reclaimer.

The Stacker is a tripod construction with three legs and a tripper trailer. The Stacker can traverse the entire length of the stockpile area depositing the coal by slewing or by making longitudinal passes. The Stacker boom will only reach half the width of the storage stockpiles so bulldozers are used to push the coal to the outer edges of the piles. Due to the danger of spontaneous combustion, a large mobile vibratory Compactor is used to compact the piles to a density of 70 lbs. per cubic foot or greater. To achieve this density, increments of 18 inches are necessary while stockpiling. The Stacker is also monitored by the multiplex system and will record any shutdowns or malfunctions of the equipment.

During the receiving of a coal train, water sprays are used to control dust at transfer points. These sprays are controlled by the Stacker or REclaim Operators and may be used at various points and in various combinations to achieve optimum dust control before the product reaches outside atmosphere. The stockpiles at present will accommodate up to 1,250,000 tons of coal, with a density of 70 lbs. per cubic foot and a moisture content of 8 per cent. This

THUNDER BAY TERMINALS LTD.

TERMINAL FEATURES & SITE MAP

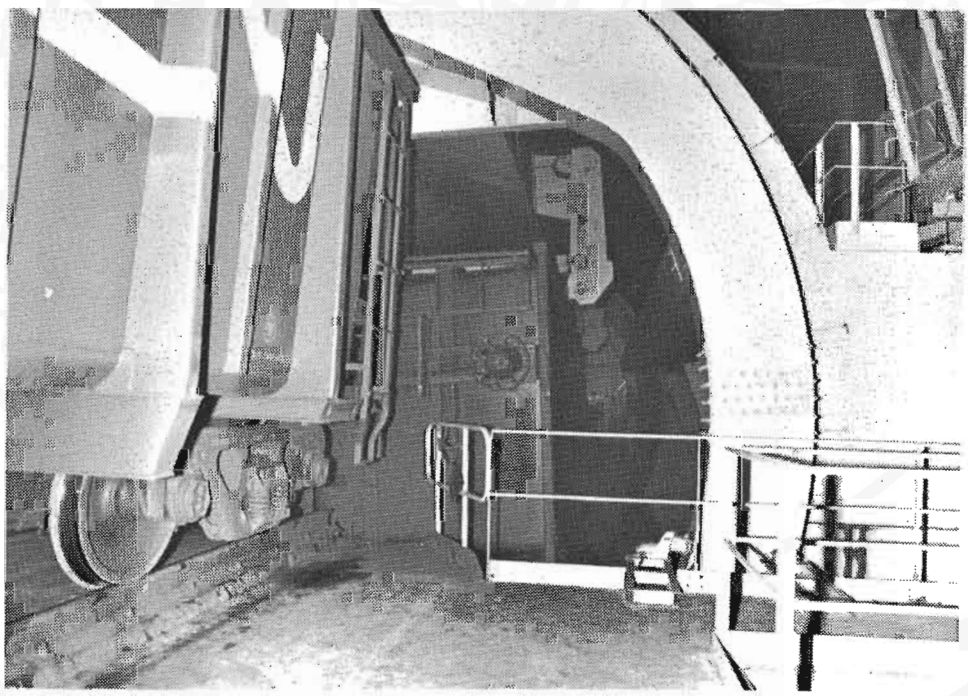


storage space is adequate to stockpile coal during the winter months while the Great Lakes are ice bound.

The Reclaimer operates similarly to the Stacker. There is a bucketwheel at the end of its boom and through the use of luffing, slewing and traversing motions will pick up the coal and deposit it on the boom conveyor at the rate of 6000 tons of coal per hour. The boom conveyor carries the coal to a chute and loading table that reload the Yard Conveyor which in turn carries the coal to a Surge Bin. While dumping a train, the coal may by pass the Stacker, but because the Dumper limits the dumping rate to 4000 tons per hour, the Reclaimer has the ability to add 2000 tons per hour to the load on the Yard Conveyor thus bringing the ship loading rate to 6000 tons per hour; the system's capacity.

The Surge Bin is divided into four hopper sections, with each section having its own belt feeder capable of loading at 2000 tons per hour. The Shiploader Operator had individual control over the Feeders and can adjust the flow from zero to 8000 tons per hour. There is a dry dust system as well as water sprays at the loading point of the Shiploader Conveyor belt that are controlled from the Shiploader.

A shipping conveyor extends the entire length of the dock and discharges the coal onto the Shiploader conveyor belt by means of a Tripper and Loading Chute.



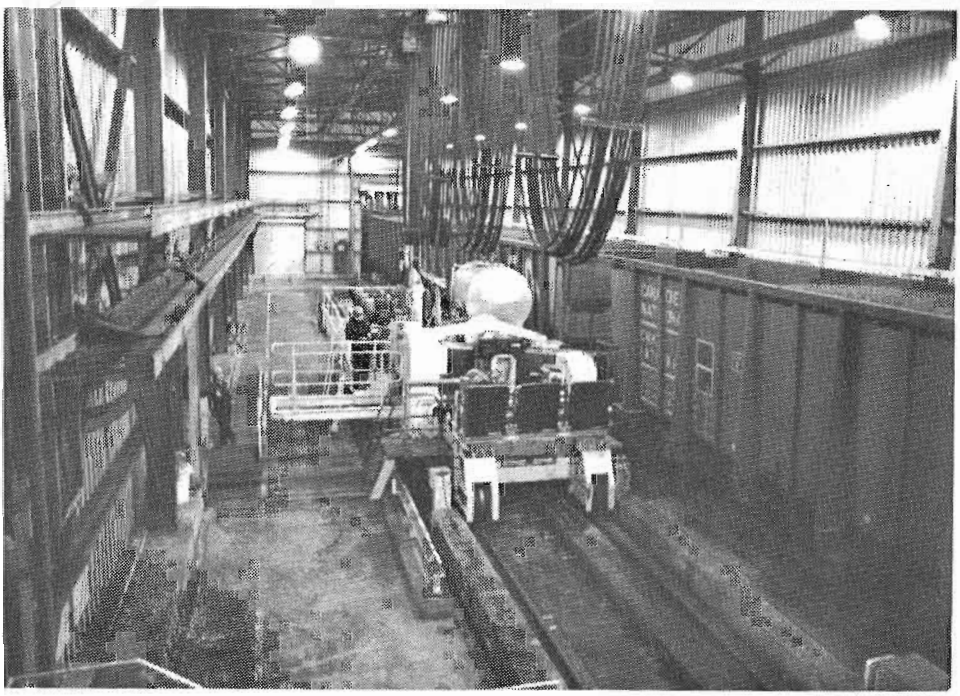
CAR DUMPER. Can dump one car every 90 seconds. Each car has 100 tons of coal. Kenneth A.W. Gansel, June 1980.

The Shiploader is a bridge type construction and traverses along the dock to permit loading of a vessel without the need for repositioning the ship. The Shiploader has a moveable shuttle with a rotating loading spout to evenly distribute the load. The material flow is stopped while the Shiploader is being positioned in an empty hold and during this time, the Surge Bin allows the Reclaimer and Yard Belt to continue operating. When the Shiploader is again ready to receive material, the operator may use any of all the feeders for a maximum loading rate of 8000 tons an hour which will again empty the Surge Bin because the Reclaimer has an operating capacity of 6000 tons per hour.

The Belt Scale on the Wharf Conveyor will keep a cumulative total of all shiploading as well as a printed read-out in the Control Tower.

The entire shiploading operation is accomplished by way or a radio controlled unit whereby an operator can conduct the operation from the deck of the vessel being loaded.

Although the dock at the present time can accommodate a vessel of up to 750 feet in length, it has the provision for additional dredging of the slip to accommodate vessels of 50,000 tons having a length of 1000 feet.

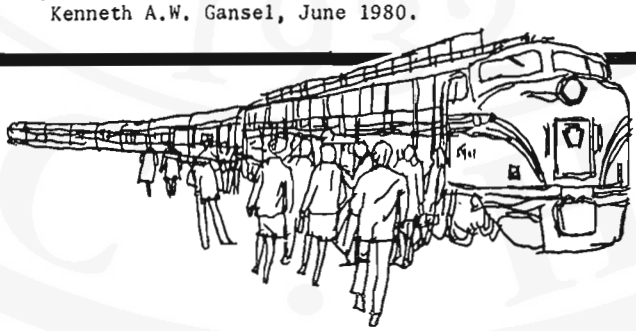


AUTOMATIC POSITIONER. Can move a 100-car train without the aid of locomotive power.
Kenneth A. W. Gansel, June 1980.

The storage yard has a system of drainage ditches that divert all surface water to lined settling ponds. These ponds are then used as storage for supplying water to a high pressure yard spray system. This spray system may be controlled automatically from the Control Tower so that the coal piles may be kept moist and stop any dust from being blown from them. Should this system fail, there is a backup mobile water spray truck which has a capacity of 5000 gallons and a high pressure pump that is directed through an adjustable spray head mounted on a turret. This truck is complete with equipment for dust suppression on the terminal roads.

A number of computer programmes provide operating and maintenance control such as Store security, man-power scheduling and preventative maintenance.

THUNDER BAY TERMINALS LTD. Loading the "Canadian Transport" with 30,000 tons of coal.
Kenneth A.W. Gansel, June 1980.



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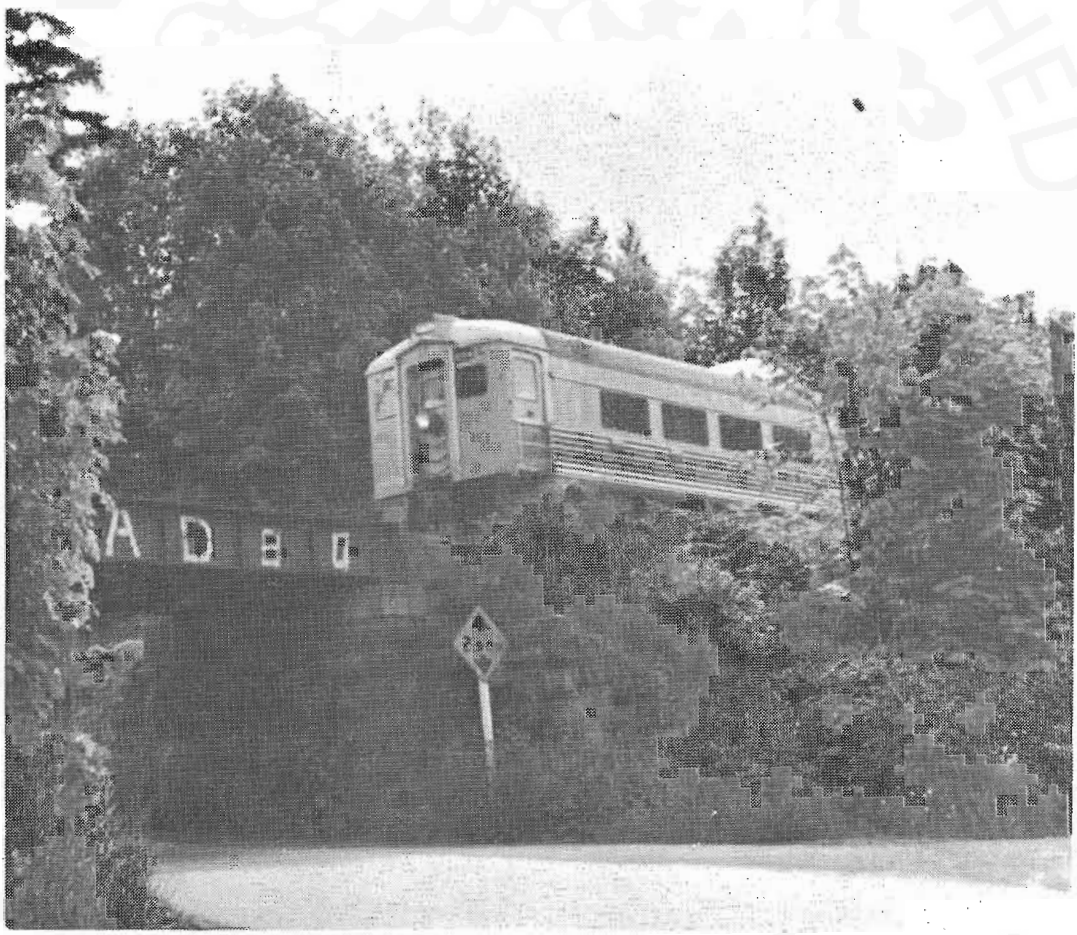
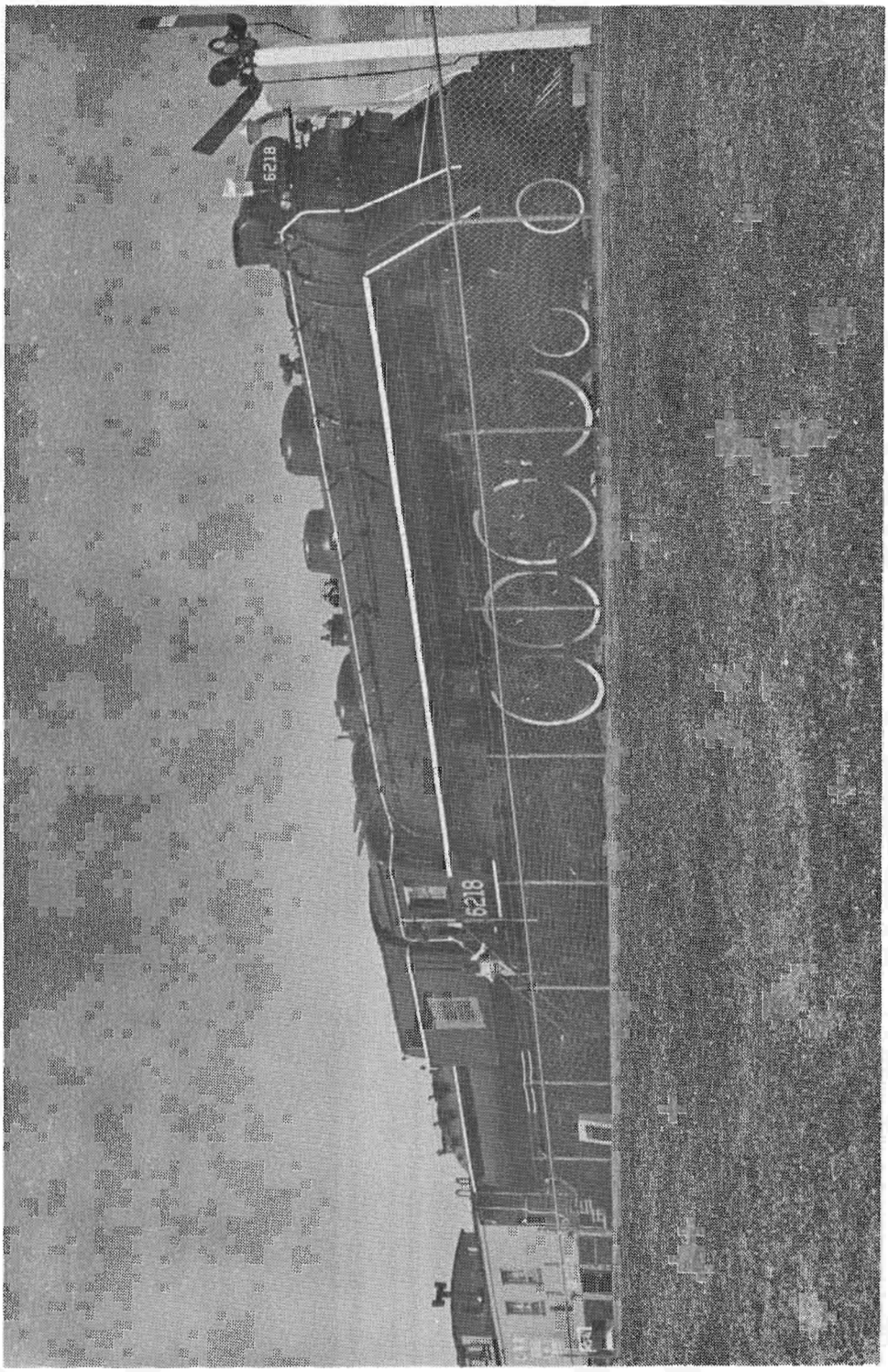
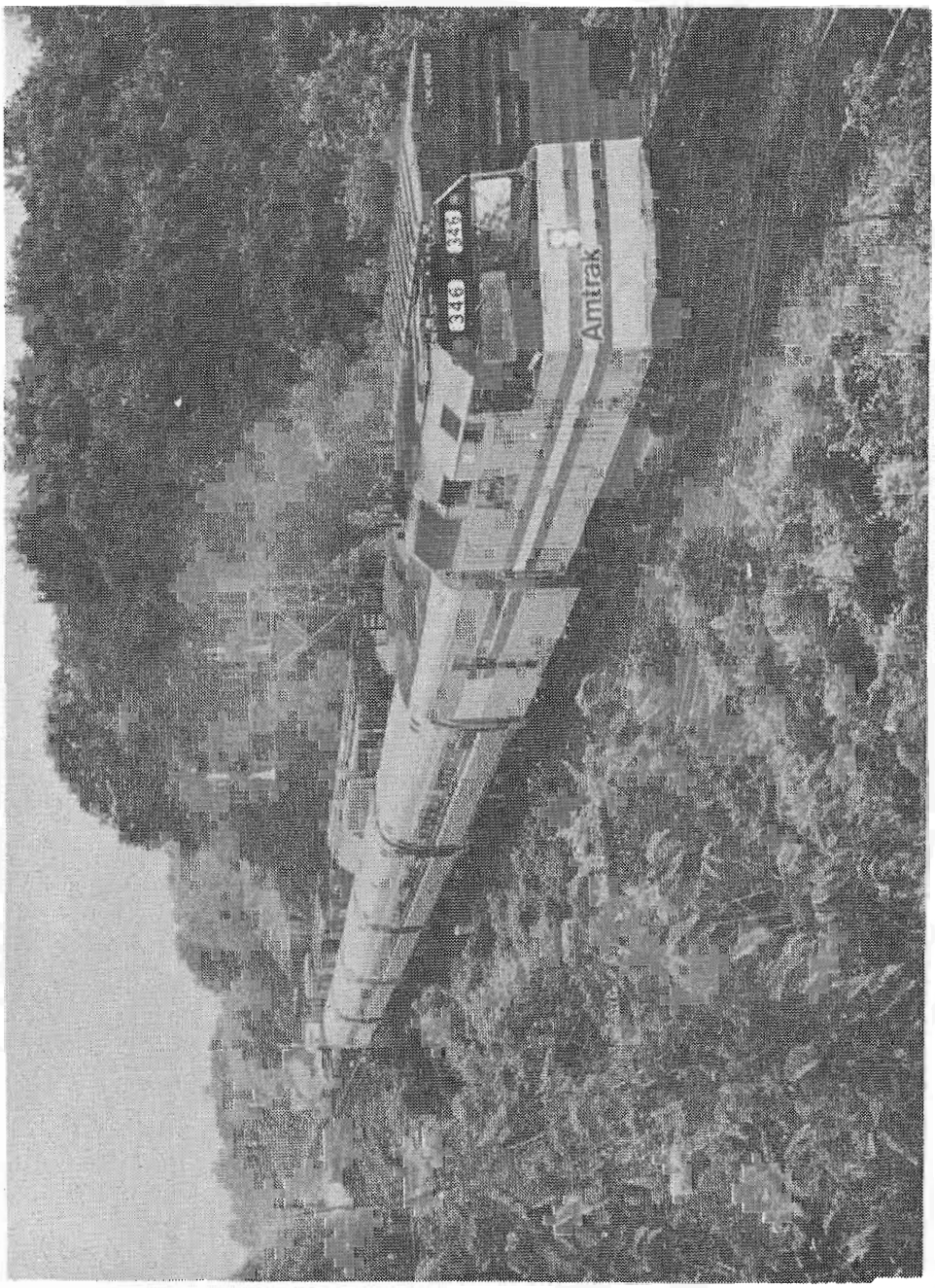


ONE OF THE FEW VIA LINES TO ESCAPE UNSCATHED from Pepin's cutbacks is the Esquimalt & Nanaimo Railway passenger service on Vancouver Island in British Columbia. In this photo by Susan Miles we see an R.D.C. in the VIA colours about to cross a highway underpass at Cowichan station B.C.



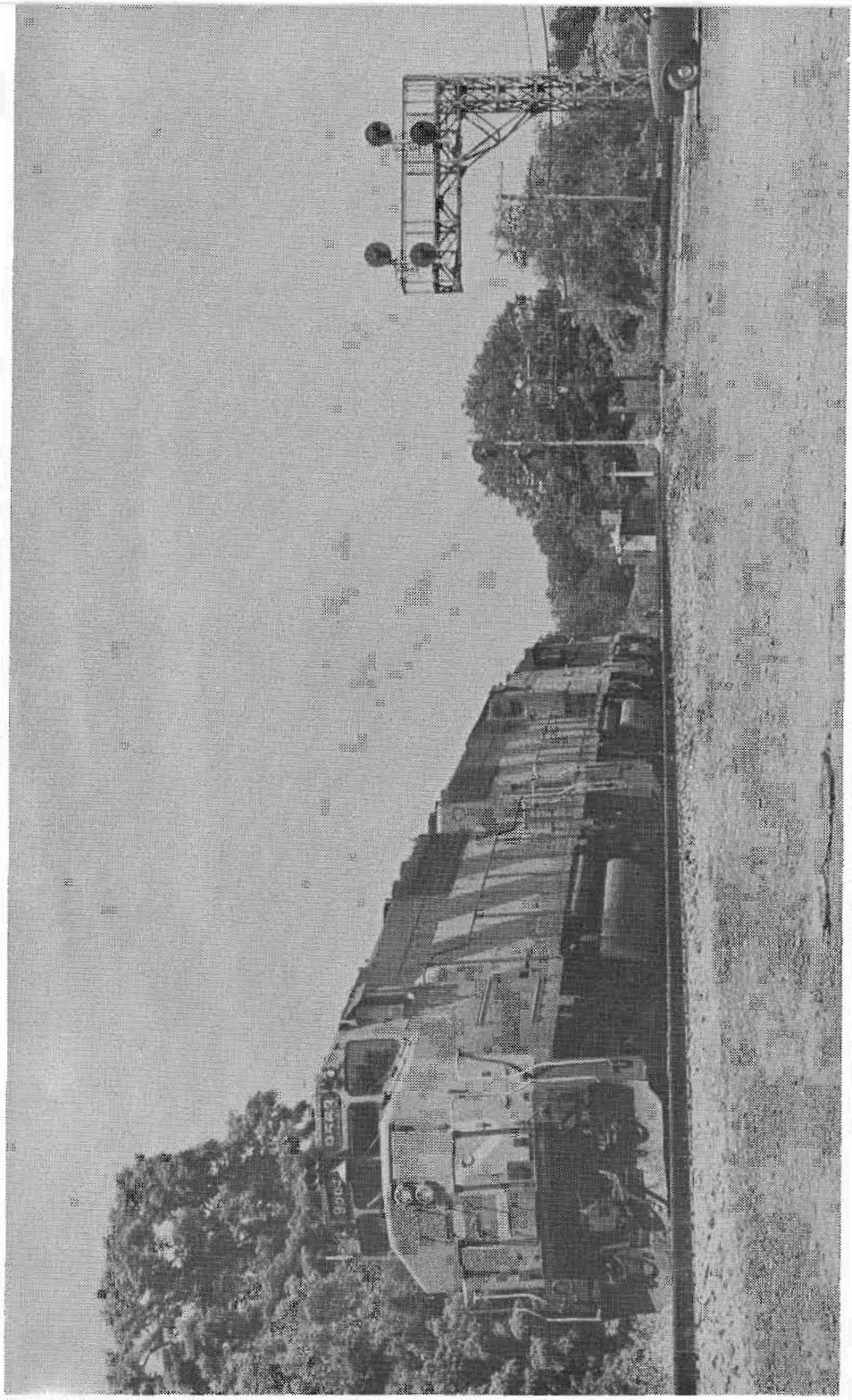
GONE BUT NOT FORGOTTEN. Former steam excursion locomotive 6218 basks in the sun on her display grounds in Oakes Park in Fort Erie Ontario. With a fresh coat of black paint old 6218 still looks as if she could steam on for years to come.

Photo by John Russell.

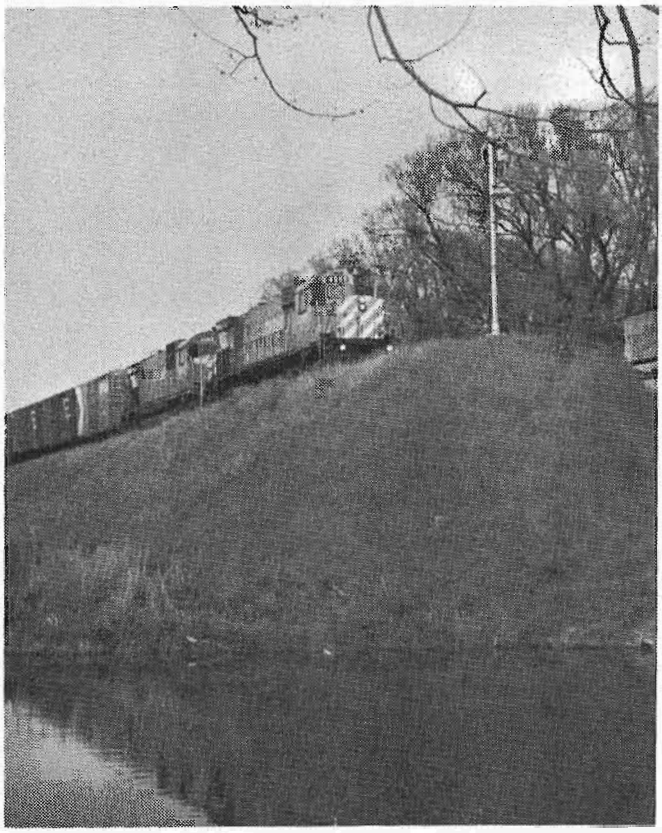


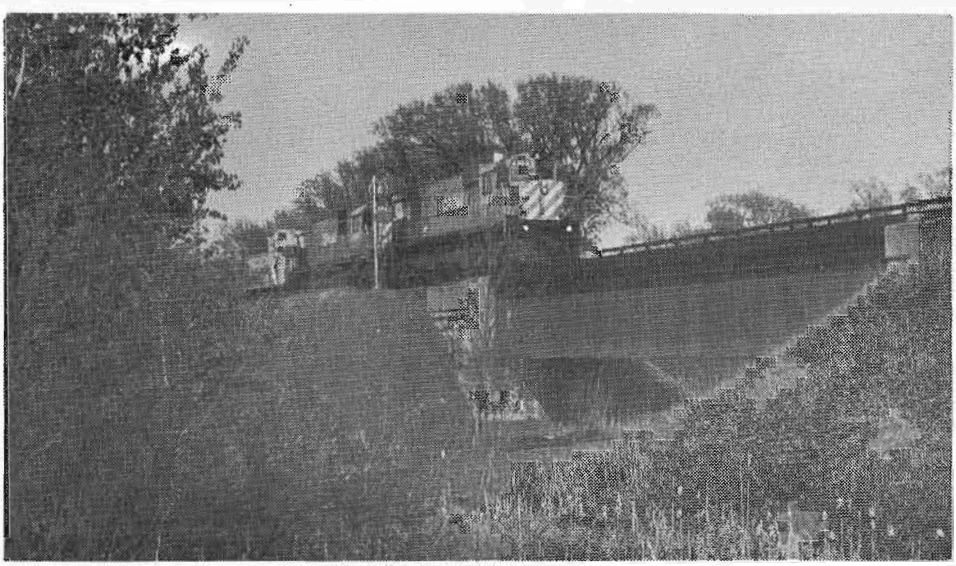
A NEW DAILY OCCUPANT OF BAYVIEW JUNCTION is the newly-introduced Amtrak train between Toronto and New York City. Over an hour late here is train 99-98 the Maple Leaf heading to Toronto from the Big Apple. F40PH unit 346 with its Amfleet coaches are the usual consist of this train. Here, it is passing a Sarnia-bound C.N. freight

Photo by John Russell.



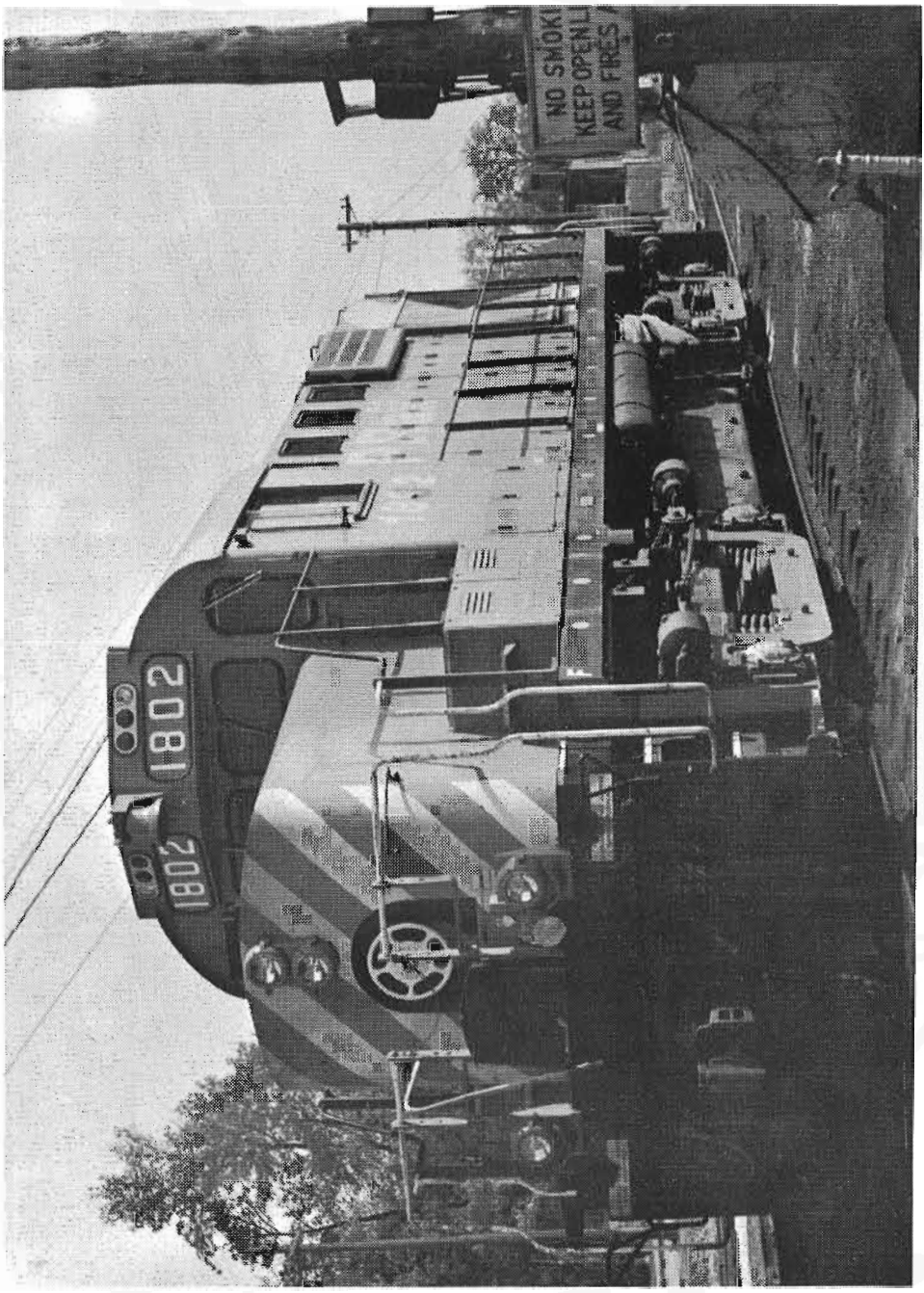
UNDER THE WATCHFUL EYE OF A C.N. POLICE OFFICER, a long freight comes on to the Dundas Sub. in Bayview Junction (Hamilton) Ontario. Unit 9563 and two other GP-40-2 units head towards a Sarnia Destination. C.N. police have stepped up their patrols at Bayview keeping railfans in check for trespassing on this very popular section of C.N. property.
Photo by John Russell.



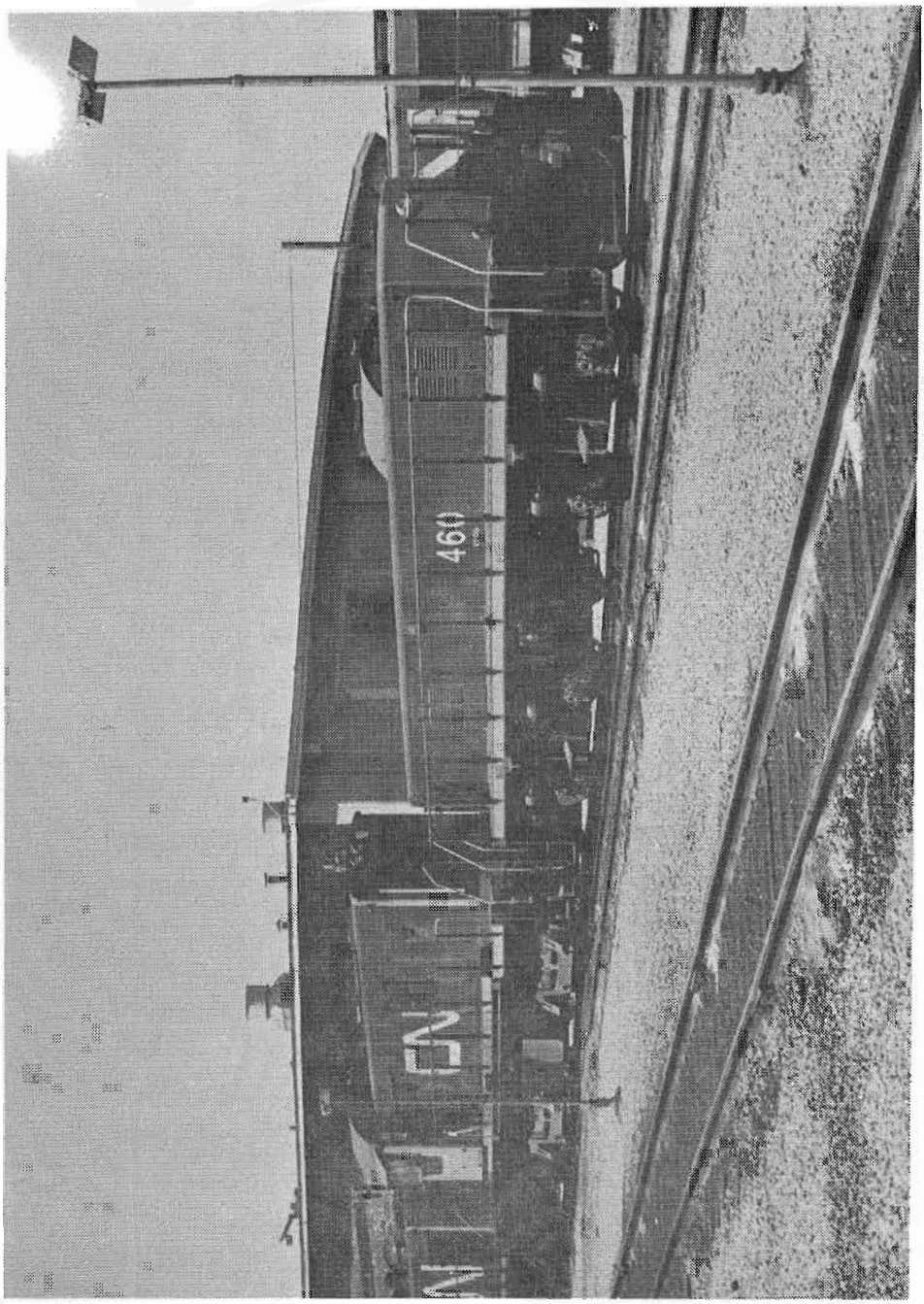


C.P. RAIL UNITS 4569 and 4504 near Woodstock Ontario on May 31 1981. This train is known as the "pickup" and is a local that picks up and sets off cars at the yards along the line. On this day it had more than eighty cars.

Gordon R. Taylor.



C.P. Rail No. 1802 was rebuilt from old unit 8746. Here we see it at Woodstock Ontario on May 31 1981 while on a weekend layover from its job of working cement plants in the area.
Gordon R. Taylor.



C.N. No. 460, class YBU-2, photographed on May 3 1981 at the engine terminal at Sarnia Ontario. Its mate is No. 306.
Gordon R. Taylor.

LESS THAN A MONTH OLD when photographed at St. Thomas Ontario, Norfolk and Western 8075, a C30-7, is seen on October 14 1979.
Gordon R. Taylor.

ONE OF THE LAST BUDD CAR SETS TO REMAIN IN THE C.N. PAINT SCHEME, the cars of VIA 665 eastbound London - Toronto stop at Stratford on October 13 1980. These cars are now painted in the VIA colours.
Gordon R. Taylor.

VIA FPA4 No. 6765 photographed on eastbound train 74 heading for Toronto on April 25 1981. Note the absence of the VIA logo on the nose.
Gordon R. Taylor.

BACK COVER.

TWO M-636 C.P. RAIL LOCOMOTIVES with one T.H. & B. switcher tucked in behind lead a relatively-short C.P. Rail "Starlight" freight through Bayview Junction on its return trip to Toronto yards on June 28 1981.
Photo by John Russell.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4723