

NATIONAL
TRANSCONTINENTAL
RAILWAY

ST MALO
SHOPS

QUEBEC CITY,
QUEBEC

well as additional smaller cranes not decided on as yet.

THE SHOP OFFICES will be located in a three story and basement building 60 ft. square, near the end of the locomotive shop, and back from it. All the shop officials will be located in this one building, dispensing with minor shop offices. This building will differ slightly from the others, but will be similar in the main, of brick construction on concrete foundations.

THE STORES BUILDING will be of reinforced concrete throughout, 104 by 79 ft., flush with the midway, and with a 10 ft. platform extending around three sides, with ramps leading up from the ground level on the platform at two of the corners. It will also contain a basement. The platform on the midway side will be served by a 20 ton midway crane, facilitating the delivery of stores to and from the different units of the plant.

THE FORGE SHOP is a building 155 by 107 ft., of the typical construction, except that the flooring is to be cinder instead of dressed concrete, as is usual in forge shop practice. It will contain the usual complement of forges, hammers, etc. The steel work of the roof is designed to support the jib cranes.

THE POWER HOUSE will be 125 by 107 ft., divided by a fire wall into engine and boiler rooms, with a pump pit running along this fire wall in the engine room, and a basement extending under the whole area of the boiler room to accommodate the coal and ash handling apparatus, a construction closely approximating that at Transcona in most particulars. The power house will be close to the midway, and quite centrally located with regard to all the buildings of the plant, minimizing electrical transmission losses, and supplying dry steam for the hammers. The engine room will be served by a light travelling hand crane.

THE OIL HOUSE will be a reinforced concrete main floor and basement building at the rear end of the plant. The oil house itself will be 30 by 40 ft., standing on a platform 50 by 70 ft., which will form the roof of the basement. The usual oil house stores will be kept upstairs, with the oil tanks for the plant located in the basement.

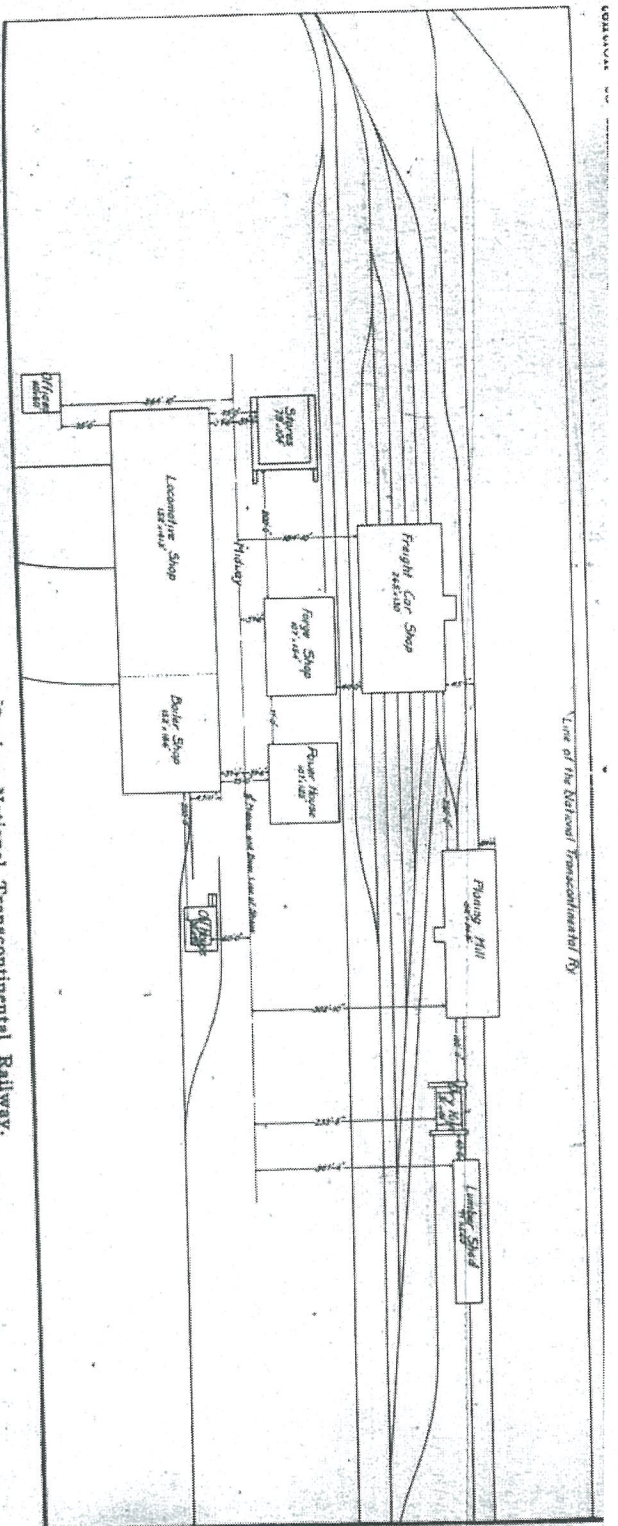
THE FREIGHT CAR SHOP, 265 by 130 ft., will be the principal of the car department buildings. In common with the other purely car department buildings, it will be located back from the midway, with the buildings used in common with the locomotive department, such as forge shop and power house, centrally located between. It will be divided into three bays, two of which will be served by cranes. There will be six through repair tracks, with rip track accommodation at each end, where future extensions may be made.

THE PLANING MILL, 32 by 265 ft., will be conveniently located to the rear of the freight car shop. It will be but a short distance across from the power house, to which the mill shavings will be forced under a fan system.

THE DRY KILN, to the rear of the planing mill, will be 33 by 71 ft. of the

car shop. There will thus be no retrograde movements of the material in passing through the plant.

The whole layout of the Quebec shops, as well as the detail design of the individual buildings, have been prepared under the supervision of W. J. Press, Mechanical Engineer, N.T.R., to whom we are indebted for the data for this article.



Layout of Shop Buildings at Quebec National Transcontinental Railway.

T.P.R. lines west of Winnipeg, until such time as it becomes necessary for that line to build additional shops further west, as the C.P.R. has recently done at Calgary.

The shops at Quebec will be located in the suburb of St. Malo, which is about 2 miles distant from the centre of the city and almost due west. From the north end of the Quebec bridge, now under construction for the N.T.R., the line follows a northwesterly direction along the St. Lawrence River to Wolfe's Cove, piercing the escarpment at this point, the tunnel running straight back from the river, coming out near the site of the projected shops at St. Malo. The C.P.R. Quebec-Montreal branch passes through St. Malo, and the N.T.R. line from near the point where it leaves the tunnel, forms a Y in two directions to make connection with the C.P.R. The shops will be located on the southerly of the Y branches, in the track entangled area, the shop area being about 1½ miles long by ¾ mile wide, the main line running along one side.

The arrangement of the buildings is shown in the accompanying plan, from which it will be noted that the layout, while providing for ample accommodation for meeting all requirements for many

materials along the midway, with the other buildings back from it. It is considered that this arrangement will prove most satisfactory for a small shop such as this, because the material brought to the shop by the midway crane and placed at one of the several doors of the building, will be taken from the door to the machines in the most direct way. In this respect, it will do away with the "long haul" in the shop. The midway, which will extend the full length of the main part of the shop grounds, will be 75 ft. wide, and served by a 20 ton travelling crane, the track for which will be supported on building abutments and steel columns.

The level of the ground on which the shops will stand is to be raised slightly by spreading over the surface the material removed from the tunnel under the mountain. Most of the buildings in the group will be of practically the same construction, a self supporting steel frame with white brick superstructure walls, the whole supported on a concrete wall, the wall carried up to the window sills. The roof of each building will be of double wood sheathing, with ventilators and skylight, and covered with a prepared roofing. The flooring in all cases, save where specially excepted, will be of 6 in.

The floor area per pit when compared with many other shops, shows that there is ample provision for future needs, and the shop will not soon become encumbered with material and locomotive parts.

The relation of the locomotive and boiler shop building to the midway will be rather unusual, being located with the long side to the midway instead of the usual end on arrangement. This layout is the result of careful consideration, which counselled this arrangement in order that all parts of the shop would be convenient to the midway, for the crane in the latter to bring parts from the stores and other buildings into the shop without disturbing the interior working of the shop as frequently occurs when material must be handled the full shop length. The material can be taken in through doors located at intervals along the midway side. Along the other side of the shop there will be two entry doors to the locomotive shop, and one to the boiler shop, for the entry of locomotives and tenders. In the erecting bay of the locomotive shop there is to be a 120 ton travelling crane for placing the locomotives on their respective pits. There will be in addition, two 10 ton cranes. The boiler shop will have a 20 ton crane, as

rods were down unnoticed at times and refusing to extend when required.

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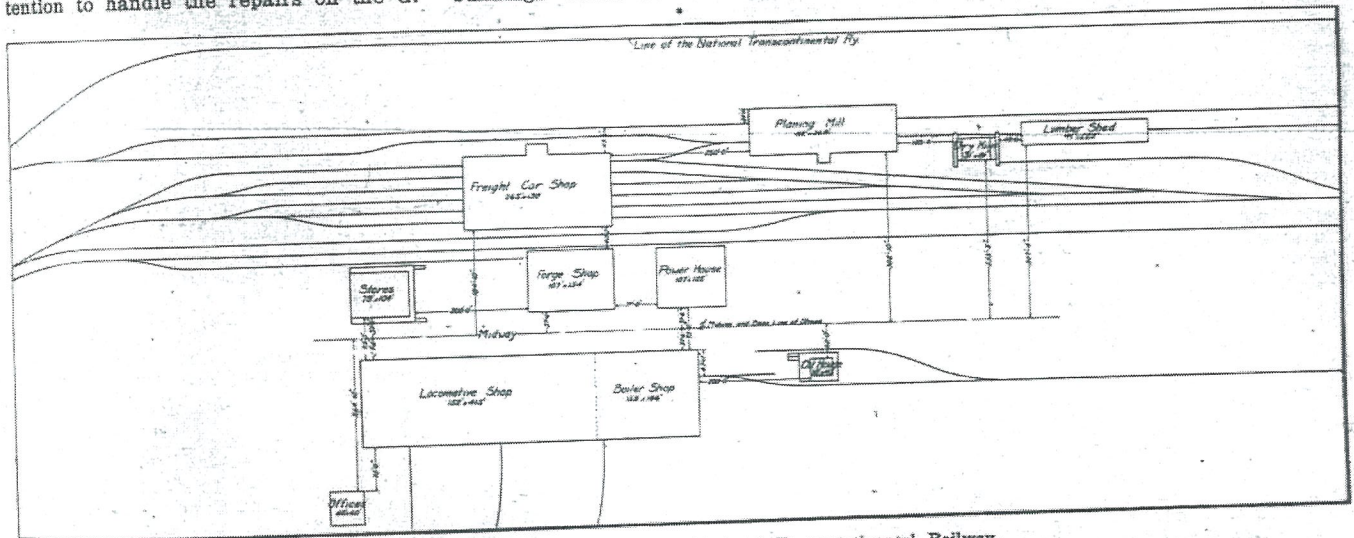
National Transcontinental Railway Shops at Quebec.

The plans for the shops to be built by the National Transcontinental Ry. at Quebec, Que., estimated to cost \$1,500,000, have recently been prepared and tenders will shortly be invited for the work. They are intended to handle all the repairs on the eastern end of the N.T.R. in conjunction with the larger shops at Transcona, Man., 5 miles east of Winnipeg, the major portion of which has been in operation for some time. A description of the latter, dealing with each of the locomotive department buildings in detail, appeared in Canadian Railway and Marine World for Feb., 1912. These two shops will handle the whole 1,800 miles of the N.T.R. from Moncton to Winnipeg, and in addition, it is the intention to handle the repairs on the G.

years to come, is considerably smaller than that at Transcona, but the layout and grouping is such that additions to present buildings, and additional buildings, may be made at any time without destroying the utility of the present arrangement.

The shop buildings will be arranged along a midway, which will parallel the main line, the relation of the buildings to the midway being somewhat different from that in the generally accepted midway shop arrangement in which the shops are placed end on the midway, with each of the buildings close together, with room for expansion to the rear. In this layout the arrangement is different, involving the location of the buildings which use the heavier ma-

THE LOCOMOTIVE AND BOILER Shop Building will be 603 by 152 ft., containing both locomotive and boiler departments in opposite ends, there being no divisional walls in the length of the building. The building will be divided into three bays, extending the length of the shop, and divided into 26 traverse bays at 23 ft. centres. Of these traverse bays, 18 will contain locomotive pits, leaving 8 traverse bays for the boiler shop. The longitudinal bays will be as follows:—Erecting bay, 75 ft. wide; large machine bay, 55 ft.; and small machine bay, 18½ ft. Over the small machine tool bay there will be a gallery extending the length of the shop, containing the lighter equipment and heating plants. The locomotive shop space will give an area of 3,400 sq. ft. of floor area per pit, which is slightly smaller than that of the Transcona shops. These shops being smaller will probably not average as heavy repairs as the western shops near the centre of the combined system.



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September, 1918.]

and it is important to use the last vestige of daylight. A pole rod, self reading, with figures painted on the wood was used almost invariably. The telescope rods were apt to play tricks, slipping down unnoticed at times and refusing to extend when required.

Repairs were difficult to make, and as a matter of fact this question of repairs with the elementary tools which could be carried (the axe, spokeshave, auger andawl) was one that entered into consideration with almost every article of the equipment.—Engineering News.

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concrete overlaid with a 1½ in. layer of special grease resisting mastic asphalt. The heating of all but the locomotive and boiler shop will be by direct radiation, the locomotive and boiler shop having an indirect fan system.

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