

ped with a vent.

In the oil supply room on the first floor are located six Bowser self measuring, hand operated, oil pumps for the distribution of oil. These pumps are arranged along the west wall and are of the positive suction type, and have a 1½ in. suction pipe from tanks. Directly below nozzles of pumps are drip pans with 1½ in. return connections. In the northeast corner of this room is a 3 ft. 2 in. by 7 ft. door, by which entrance is gained to oil room from the outside. Just inside of this door is a counter at which requisitions for material from this room are filled. Under this counter are racks for storage of a day's supply of waste.

COAL DOCK: The coaling station is located at the west end of the cinder pit on the south side of the south track leading from the turntable. Parallel to the track the structure is 161½ ft. long, with a width averaging about 10 ft. The building is constructed entirely of timber, well over size to allow for deterioration, and all posts rest on concrete footings and are anchored to same with heavy steel plate straps. The delivery bins consist of 13 inclined bottom coal pockets, graduated in capacity so as to deliver a predetermined amount of coal to locomotive tenders, the respective pockets each being designed to hold the following amounts of coal, namely, two 2 tons; one 3 tons; two 4 tons; three 5 tons; two 6 tons; one 7 tons, and two 8 tons. The bins and framework are built of timber and heavy plank. Each pocket is equipped with an Ogle coal delivery gate and spout, which is claimed to be frostproof, and the spouts are so counterbalanced as to permit of easy operation by the fireman. The entire structure is covered with a wood sheathed roof and composition roofing. Only a limited storage capacity has been provided in the delivery bins, since the supply of coal for the winter months is purchased during the summer and stored on the ground just west of the coal dock, from which storage pile it is conveyed to the coal dock for locomotives in quantities to meet the daily demands.

The process of conveying coal from the storage pile to the delivery bins consists of three operations, namely: (1) The coal is loaded into one ton steel buckets, each provided with a bail, and the buckets placed at either end of the coal dock; (2) the buckets are hoisted to a trolley track, which extends longitudinally over the elevated delivery bins by means of a plain inverted pneumatic hoist, the hoist operating in conjunction with a jib crane so as to allow the bucket bail to be swung around and hooked on to a plain I beam trolley on the runway track; (3) the hoist is then released by the operator, who pushes the loaded bucket along the track, directly over the pocket to be filled, and by releasing an automatic catch on the bail the bucket empties its load and is afterwards conveyed back to the coal storage pile for refilling. The coal dock is provided with a semi housed shelter at each end to enclose the pneumatic hoists and jib cranes and to afford protection for the operator. A walk extends the entire length of the coal dock just over and at one side of the coal pockets. The pneumatic hoists and jib cranes have a capacity of four tons each at 80 lbs. air pressure, and are of the Curtis & Co. Manufacturing Co.'s make.

THE CINDER PIT is located on the main tracks leading into the locomotive house, and about 400 ft. west of the latter. At present only one pit is built, with the depressed track in the centre between the two main tracks, which are 28 ft. centres. All pit walls are of concrete, with concrete base for vitrified paving brick floor. The cinder pit is 48 ft. long and approximately 10 ft. wide, and has a solid concrete wall under the outside rail of the track, forming bear-

ing for same, and to which the rail is fastened with cast steel clips and anchor bolts set in concrete. Along the inside edge at the top of this wall is a steel curb angle to prevent chipping of the concrete. One inch below the top of this wall is the toe of a 45° face, sloping to the bottom of the pit, which is 3 ft. below the base of rail. The bottom is about 8 ft. wide, pitched just enough to drain to gutter and sewer connection, which runs parallel and adjacent to the concrete wall between the pit and the depressed track, of which the difference in height is approximately 3 ft. The inside rail is supported on cast iron standards, 6 ft. centres on concrete piers, an inverted rail being applied to the running rail, base to base, for reinforcing between standards. The clear height under rails to base of pit is about 2 ft. 8 ins., giving easy access to locomotive fire boxes.

The depressed track is 6½ ft. deep and level for about 48 ft. opposite the cinder pit, with a steep grade at the east end to act as a bumper, and a 6 per cent. grade on the



R. S. McCormick, M. Am. Soc. C.E.
Chief Engineer, Algoma Central and Hudson Bay Ry., and Algoma Eastern Ry.

run in end. Reinforced concrete walls are used on both sides for the full length, with gutters of paved brick at each side of the bottom. The clear space between walls is 12 ft. and the track is centred on this. Provision is made for easily removing part of the north wall opposite present cinder pit for another pit at such a time as it is required. All corners of walls are strongly reinforced to prevent cracking. The depressed track is laid upon 6 ins. of cinders, and is drained to the gutters at sides, which are sloped to a sump covered with a cast iron grating connected to sewer. Water service is provided for use about the pits.

THE MACHINE SHOP EQUIPMENT consists of the following tools, most of which are new:

	Method of Driving.
80 in. Driving wheel lathe	Individual motor
400-ton hydraulic wheel press	Belt
36 in. Engine lathe	"
24 in. Engine lathe	"
16 in. Engine lathe	"
16 in. Toolmaker's lathe	"
Pratt & Whitney turntable lathe	"
42 in. Vertical boring mill	"
18 in. Crank slotter	"
18 in. Crank shaper	"
No. 2 Universal miller	"
66 in. Radial drill	"
30 in. Vertical drill	"
1 in. Sensitive drill	"

Power hack saw	"
Twist drill grinder	"
Wet tool grinder	"
Pipe bending machine	Hand operated
48 in. Punch and shear	Individual motor
Plate bending rolls	"
Ryerson, pit type, flue cleaning machine, capacity 500 2 in. tubes per hour	"
Flanging clamps	Air
Flange forge	"
22 in. Lathe	Belt
22 in. Axle lathe	"
36 in. Planer	"
24 in. Shaper	"
Wheel boring machine	"
Wheel press	"
Radial drill	"
6-Spindle drill	"
3 Vertical drills	"
Triple bolt cutter	"
Pipe threader	"
Wet tool grinder	"
2 Emery wheels	"
42 in. Punch and shear	"
Bolt threader	"
Bulldozer	"
2 Bradley hammers	"
Flue cutter	"
Bolt furnace, case hardening and spring furnace,	
Annealing furnace, flue welding furnace,	
Blacksmith forges, oil rivet forge, flue welder,	
Steam hammer, and one blast and exhaust fan.	

The motors for driving the group line shafts and individual tools are 220 volt, 60 cycle, alternating current, induction motors. Power is purchased from the Tagona Water and Light Co., whose hydro-electric plant is located not far from the shops. Two motor-driven air compressors are located in the southwest corner of the engine house, and compressed air outlets are located at convenient points throughout the machine shop and locomotive house. The line shafts are supported by drop hangers fastened to steel shafting supports of special design, clamped to lower chords of the steel roof trusses. The supports are built of standard rolled steel sections, easily fabricated, and permit of very simple alignment of shafts and hangers. The motors driving the line shafts are supported by brackets, some of which are mounted on the steel columns and some on the brick walls. These brackets are constructed of standard rolled steel sections, with a base of reinforced concrete for the motors to set upon. Pipe sleeves are set in the concrete for motor base bolts, which gives a solid anchoring and minimizes vibration.

FUEL OIL STORAGE: Two 30 by 4½ ft. diameter steel fuel oil tanks are located underground outside the east end of the machine shop, the latter end of which accommodates the blacksmith shop department. Oil can be unloaded by gravity direct from tank cars into the tanks. It again flows by gravity into a small delivery tank, from which it is forced to the burners by compressed air at 20 lbs. pressure. All of the tanks and piping are equipped with heating coils to prevent the sluggish flow of oil during cold weather.

LIGHTING SYSTEM: The buildings and yards are all well lighted. The engine house is lighted with flaming arc lamps, one to each space between engine pits and three over the turntable pit. The erecting portion of the machine shop is also lighted with flaming arc lamps. Clusters of tungsten lamps are used in the machine shop. The shop offices, toilet and locker rooms, and tool room, are lighted with carbon filament lamps, and tungsten lamps are used in the store house and offices. All power, light and water is supplied by the Tagona Water and Light Co., one of the Lake Superior Corporation's subsidiary companies.

EXTENSION TO BRUCE STREET: The extension of the main line to Bruce St. involves an undercrossing of the C.P.R. Sault Ste. Marie branch, where excavation was made through part rock. This excavation, including the concrete abutments, was done by contract by the H. E. Talbot Co. of Sault Ste. Marie. A half deck girder span, 25 ft. long, spans the opening carrying the C.P.R. track over the A.C. and H.B.R., at