

quickly removed from the furnace by two men, with tongs specially formed for this purpose, and are placed in the bulldozer, care being taken to properly centre the bar on the machine and to see that it lies level, then by one stroke of the bulldozer the bar is bent into the required shape, and the six holes punched in it, thus completing at one operation, and in a few seconds, what formerly required an hour or two to form.

It will readily be seen that the bulldozer is a very important factor in the railway blacksmith shop to-day, as the two articles referred to, the M.C.B. coupler pocket and arch bar, are only instances of a large number of like articles that go into the making of a car. The coupler carry irons, body bolsters, U bolts, angle irons, corner bands and numerous other articles are rapidly turned out by this wonder of modern blacksmithing. In addition to the great economy of production accomplished by this machine, the uniformity in size and shape of all of its products is another constant recommendation in its favor, and one that is

to be the case, good blacksmiths never before being in such demand as at present, and never having been paid such good wages as at the present time.

Like all other products of the mechanical art, improvements in blacksmithing go on so rapidly that no one man can say that he is fully conversant with them all, and it is hoped by the writer that the discussion which will follow this paper will bring out many descriptions and references to better and more economical methods of manufacture as would indicate that the railway blacksmith is as progressive and up-to-date in the Dominion as in any other part of the world.

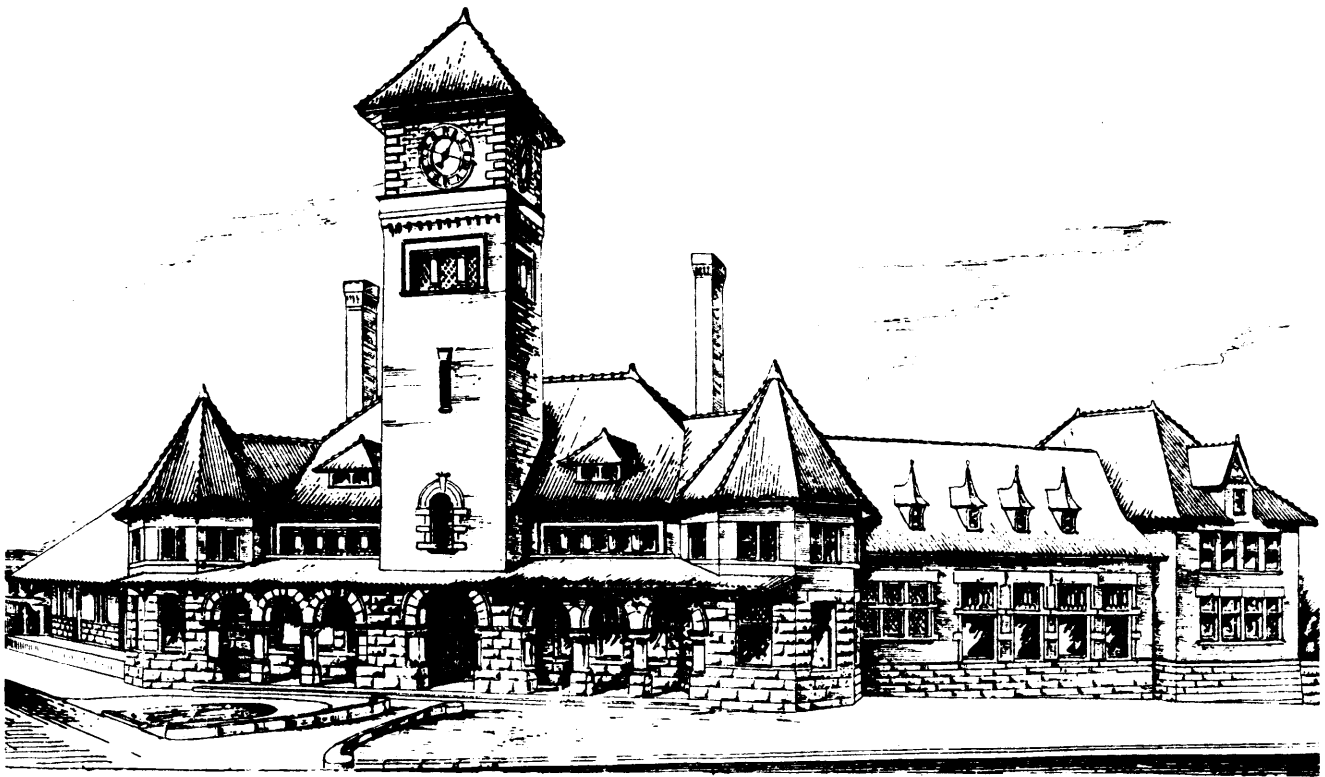
The foregoing paper was read before a recent meeting of the Canadian Railway Club.

Grand Trunk Ry. Betterments, Etc.

Portland Station.—The new station which the Co. intends erecting at Portland, Me., will, in every sense of the word, be modern and up-to-date. It will extend along India st.,

In the northwest corner will be the men's smoking room. South of the general waiting room will be the dining room, 32 by 33 ft. This will be finished in marble similar to the waiting room, and will have a seating capacity of 32 people, as well as a luncheon counter. Along the Fore st. side will be the room for the baggage, express, telegraph and customs rooms. Spier & Rohn, Detroit, Mich., are the architects.

Montreal Y.M.C.A. Building.—The new building for the Railway Young Men's Christian Association, illustrations of which are given on pages 405 and 407, will be erected on the corner of Sebastopol and Leber streets, Point St. Charles. The building, which is of simple design, consists of a centre building three stories high above the ground floor, with a wing on each side of same, one story high above the ground floor. The ground floor will be about three steps below the level of the street, and will be entered from Sebastopol st., in the centre of the main building. The base of main build-



THE GRAND TRUNK RAILWAY'S NEW STATION AT PORTLAND, ME.

very much appreciated by the men who do the assembling.

While the bulldozer is probably the most important machine in the car blacksmith shop, another smaller but very useful one is the eye-bolt machine, which takes a bar of iron, which is straight when it is put in the machine, and in a few seconds turns a perfectly formed eye upon it, bends hooks for brake hangers, bends iron into a U or stirrup like form, which is also much used for brake hangers, turns iron into the necessary shape for links ready to be welded up, and does a variety of other complicated operations. There are several other machines used in blacksmithing, some being operated by compressed air, a great many for riveting, hoisting, spring making, etc.

It was not to be expected, of course, that when these machines were first installed in the shops that they were not met with some opposition by the craft, it being considered by the workmen that they would crowd out the employment of a large number of men, as in other lines of industry. This has proven not

140 ft., and the same distance on Fore st., and will be set back from the sidewalk 20 ft.; the front of the station, 90 ft. long, will run from India st. to Fore st. at an angle of 45° to each street. The Romanesque style of architecture will be used. The material for the exterior will be granite and fire-flashed mottled pressed brick. The roof will be covered with Spanish tile. The main waiting room will be 36 by 72 ft., and will be 30 ft. high where the groined arches intersect to form the ceiling. Above the lobby will be a row of clerestory windows glazed with leaded glass. The walls of the waiting room, to the height of 12 ft., will be of white marble, and above that will be of decorated plaster. The floors will be of mosaic tile. At the south end of the waiting room will be a niche 7 by 18 ft. for a large fireplace; the corresponding niche at the north end will be for a news and parcel stand. The ticket office will be in the back of the room, opposite the main entrance; this will be built of marble and bronze, 12 ft. high. In the southwest corner of the waiting room will be the ladies' room with toilet adjoining.

ing and wings will be of rock face ashlar, and the whole of the superstructure of brick. The wing on the left of the entrance contains a dining room on the ground floor and library on the first floor; this library has a lofty ceiling, and one end of it is divided into two stories and arranged as a stack room for books. An independent entrance to the library and dining room is made from Leber st., so that parties can use either without entering the main building, at the same time an entrance to both library and dining room is provided from main building. The wing on the right of the entrance contains a plunge bath and shower baths, closets, lockers, etc., on the ground floor, and a gymnasium and hall with lofty ceiling on the first floor. The ground floor of the main building contains a kitchen and serving room in connection with dining room, caretaker's rooms, bowling alley, and also an emergency hospital fitted with suitable appliances for dealing with emergency cases. From the main entrance on Sebastopol st. a wide staircase leads up to the ground floor of main building. Immediately opposite the