The coal handling plant is of the C.P.R. standard type, consisting of a chain of buckets raising the coal from lower hoppers to hoppers over the service tracks. The plant is of 300 tons capacity, and has four chutes. Coal cars come into the plant up a ramp, which is continued 9 car lengths beyond the plant. A string of cars can thus be fed through the plant as required from the stub end without assistance from the yard crew, once the train of 10 cars is run up the ramp. Adjoining the coaling plant there is a sand storage bin, from which the sand is elevated into hoppers on the coal hopper frame for feeding into the locomotive.

Locomotive water is obtained from the city service, there being a 60,000 gal. tank on the grounds. Between each of the pairs of ashpit tracks, and between two of the coaling plant tracks, as well as on one of the tracks passing the tank, there are water spouts, so that a locomotive can be watered on any one of 7 tracks.

On the St. Clair Ave. side of the yards there is an old house, now used by the locomotive department as a bunk house for the locomotive drivers and firemen. In the rear of the bunk house there is a well equipped kitchen where the men may cook meals, and the centre room is for dining. The front room of the house is fitted up for a reading room, with current railway technical literature, as well as books and general periodicals. This room also contains a series of air brake charts that are handy for the men's reference. The upstairs section of the house has a chain of bedrooms, containing 12 beds. Below stairs is a register book for the men's calls.

The Locomotive Foreman of this new locomotive terminal is F. Ronaldson, to whom we are indebted for the data on which this article is based.

Construction of the Alberta and Great Waterways Railway Arranged For.

After considerable difficulty, political and legal, for over three years, the Alberta Legislature has passed a new act, which is expected to settle all the difficulties which have arisen, and which provides for the building of the line under new auspices. The act repeals the one passed in 1910, by which the funds of the A. and G. W. Ry. Co. were declared to be part of the general funds of the province; ratifies the provincial guarantee of $7,000,000 of bonds, authorizes the Provincial Treasurer to deliver the bonds to the trustees for the bondholders, in exchange for the interim bonds issued, authorizes the banks to pay over the money now held to such banks as the province shall appoint; and authorizes the building of the line, the work to be started by Dec. 31.

In introducing the measure the Premier announced that the line would be built by J. D. McArthur, the Winnipeg contractor, who is President of the Edmonton, Dunvegan and British Columbia Ry. The offer made by Mr. McArthur was dated Sept. 22, and the main sections of the bill were drawn on the lines of the offer. The work is to be done on the general lines laid down in the original guarantee act, and the railway is to be finished by Dec. 31, 1915.

During the discussion on the bill, which continued every day for nearly three weeks, in the House and in Committee, a large number of amendments were considered. The principal one of these dealt with an offer put in by Janse Brothers and associates, to build the line at $16,766 a mile, which is less than the McArthur offer. This was defeated by a considerable majority.

The original act was passed Mar, 1909, and provided for the guarantee of bonds for $20,000 a mile for the construction of the main line from Edmonton to Lac la Biche and Fort McMurray, 350 miles; and an additional amount of $400,000 to provide terminals at Edmonton. The country through which the line will run is reported to be rich in minerals and the railway would give connection between Edmonton and the great waterways of the Mackenzie River basin, on to the Arctic ocean.

Railway Transportation Problems of the Future.

By J. Grant MacGregor, M. Can. Soc. C.E., Assistant Engineer, Construction Department, Canadian Pacific Railway R.ed Deer, Alta.

It is to be hoped the writer may be excused if he again refers to a subject which, although by no means a dead issue, can only be dealt with summarily in the columns of a technical journal. Mr. Wicksteed's reference to the subject in Canadian Railway and Marine World for October and his able elucidation of some of the more salient points referred to under the same heading in the September issue, suggest to the writer means by which his views can be expressed more fully on certain points, calculated otherwise to remain obscure or misinterpreted. For instance, in discriminating between the advantages of the operation of easy and steep grade standards of roads, regard should be had to the fact that, as the former has been constructed, or perhaps reconstructed, at apparently greater cost than the latter, every opportunity should be afforded the more expensive line to earn revenue proportionate to its cost, and where the volume of traffic is unlimited, this can only be done by equiping the road to its fullest capacity with modern equipment.

Generally speaking, the main object of grade reduction would be to provide for a prospective increase of business, the rate of which may be already taxing the efforts of the mechanical and operating departments to their utmost limits. But, for economy in operation, there should be a certain limit to the number of trains necessary, and in order to handle an increased volume of business with the same number of train units, lower grades and heavier train loads are sought. Again it is evident that if we assume that the modern steam locomotive has attained its highest degree of efficiency, a perpetual saving on cost of train mileage operated can only be looked for in the direction of grade reduction and curve elimination. It is this perpetual saving in cost of operation of an easy grade standard line that often fails to be appreciated to the fullest extent, when the line is turned over for operation. The remark is often made that lines with continuous stretches of low ruling grade are harder to operate than a line with broken grades, some of which may be steeper than the ruling grade. The reason should not be hard to find, nevertheless the idea is apparently a fallacious one, that it is impossible for a locomotive of the proper type, i.e., with sufficient boiler capacity and grate area, etc., to keep up a uniform speed over long stretches of low ruling grade. Experiments made by the various railways with mechanical stokers have, to a large extent, proved the fallacy of this idea, and locomotives of the proper type should no longer be held responsible for a defect which is apparently a physical one on the part of the fireman. The minimum speed of 10 miles an hour usually given on speed diagrams is no doubt too low, and tractive power should be provided for a speed of not less than 15 or 20 miles an hour on divisions where long stretches of ruling grade are developed. The writer's contention, however, is not to the end that it is necessary for all these ideal conditions to exist, and that obselete locomotives should be consigned to the scrap heap, otherwise the business of a railway must be run at a loss, but rather that they are factors and possibilities which sooner or later must be counted upon, and should now enter into all calculations for future development.

In dealing with new location, or grade reduction problems, it is wise, no doubt, as Mr. Wicksteed's remarks would appear to indicate, to have due consideration for the imperfections and frailties of our present means of operation, providing that what can be accomplished under those conditions is a step in the right direction. The writer is aware of the menace to the operating department of the type of profile certain topographical features will develop, but would be sceptical about the advantage of taking an occasional jump over a summit, if at all in excess of the ruling grade, unless, of course, in cases where momentum is a factor. Pusher grades of proper length, however, can very profitably be introduced at places where convenient for operation, such as at divisional points, but generally speaking they are unsatisfactory in the quick handling of passenger trains.

It would be interesting to know to what extent the practice of locating for future grade reduction is carried on throughout the Dominion. By this practice the results obtained are extremely gratifying, on account of the light character of profile obtained for immediate construction and the enormous saving in the cost of future grade reduction. By locating important lines, capable of future development, with this end in view, right of way, bridges, townsites, etc., need not necessarily be abandoned during reconstruction.

Mr. Wicksteed has treated the question of the comparative advantages of steam and electric motive power in a very interesting manner, but unfortunately leaves us without a ray of hope as to the future, because of the enormous capital already invested in steam power equipment. The change, of course, must be a gradual one, but if a systematic start were once made, and a practicable method of interchange instituted for the carrying on of the two systems simultaneously, it is possible that great strides could be made by the time the steam locomotive now being built at the shops is relegated to service on some unimportant branch line.

Canadian Railway Club.—Consequent on the removal of C. Murphy, formerly General Superintendent of Transportation, C. P. R., from Montreal to Winnipeg, as General Superintendent, Manitoba Division, C. P. R., and the removal of D. Crombie, formerly General Superintendent of Transportation, G. T. R., from Montreal to Detroit, Mich., in Pere Marquette Rd. service, L. C. Ord, General Car Inspector, C. P. R., Montreal, has been elected Second Vice President, Canadian Railway Club, vice C. Murphy; C. Manning, secretary to Superintendent of Motive Power, G. T. R., Montreal, has been elected a member of the Executive Committee, vice D. Crombie, and H. Osborne, Assistant Superintendent of Motive Power, C. P. R., Montreal, has been elected a member of the Executive Committee, vice L. C. Ord.

W. M. DUNLOP, chartered accountant, Ottawa, in renewing his subscription to Canadian Railway and Marine World, writes: "I enclose express order to cover my annual subscription to your valuable paper, and may just say it is quite worthy of due appreciation for its useful information."