Profiles of Railways From the Atlantic Coast to the St. Lawrence and the Great Lakes. Fig. 3 shows the profile of the Grand Trunk Ry. from Portland to Montreal, and fig. 4 shows that of the approximately parallel route of the combined Boston and

Accompanying this article are five profiles of railways extending from the Atlantic coast to the St. Lawrence river and in one case to the great lakes. The small scale on which these profiles are drawn

features of the several profiles as shown.

The Intercolonial Ry., fig. 1, extends from Halifax approximately along the coast line to Quebec and Montreal. The newer line

of the National Transcontinental Ry., fig. 2,

Fig. 3 shows the profile of the Grand Trunk Ry. from Portland to Montreal, and fig. 4 shows that of the approximately parallel route of the combined Boston and Maine and Central Vermont railways from Boston to Montreal. The former route, 298 miles, has practically a continuous ascent from the coast to the summit elevation of 1,350 ft., and then a continuous descent to the St. Lawrence. The latter route, 334

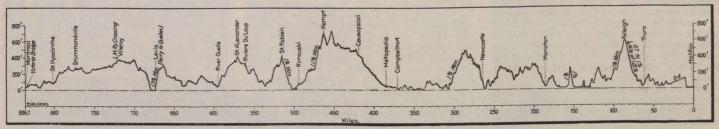
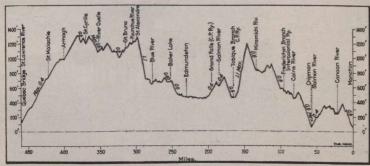


Fig. 1.—Intercolonial Ry.; Halifax to Quebec and Montreal.

compels the omission of minor variations in grade, but the main characteristics of the lines are shown. Where rates of grades are marked on the profiles the rates are the maximum in the location marked, and not the average for the entire rise; in many cases, of course, this maximum exists for only a short distance. These profiles are of special interest in showing the comparative

forms in part a cross country or chord line to the coast-line loop of the Intercolonial Ry. between Moncton and Quebec, and by thus crossing the ranges and the high land of the interior it reaches much higher elevations than the older line. The Intercolonial Ry. practically touches sea level at different points, including Levis, opposite Quebec, and has maximum grades of 1.1 to 1.3%.

miles, has comparatively easy stretches at each end, while its middle or mountain section comprises two main summits, one a little over and the other a little under the 1,000 ft. elevation, or considerably below the summit elevation of the G.T.R. line. Central Vermont Ry. above Lake Champlain As a matter of interest we give the following list of elevations on the line of the



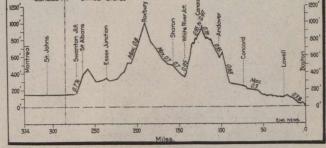


Fig. 2.—National Transcontinental Ry.; Moncton to Quebec.

Fig. 4.—Boston & Maine Rd. and Central Vermont Ry.; Boston to Montreal.

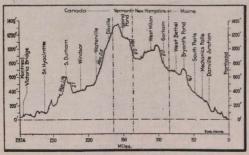
profiles of two or more lines between the same points.

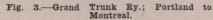
In making such comparisons, however, it must be understood that the profiles do not afford a basis for criticism as to the relative excellence of the work done by the locating engineers, since different lines may pass through country of entirely different topographic characteristics. Even when located approximately in the same district, no direct criticism can be used on the profiles. One may be an old line built when

The National Transcontinental Ry. keeps high above sea level, and its maximum grades are 1.1%, with long grades of 0.4% against eastbound and 0.6% against westbound traffic. Near Quebec it maintains an elevation of approximately 150 ft. for crossing the St. Lawrence at the Quebec bridge. The maximum elevation is 1,200 ft. A considerable part of the line is in wild and unsettled country, and water tanks or water stations are located at intervals of about 15 miles. This line makes a saving, of 32.85

and above sea level respectively:

	Lake	
	Champlain,	Sea level,
	ft.	ft.
White River Jet	267.4	361.4
Sharon	. 406.0	500.0
Randolph	597.5	691.5
Roxbury		1,009.0
Montpelier		522.2
Essex Jct		343.0
St. Albans		383.0
Swanton Jet		154.0
Stanbridge		150.0
One of the profiles	s given above,	between
Buffalo, N.Y., and Ch	icago, Ill., fig.	5, shows





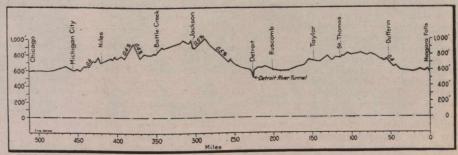


Fig. 5.-Michigan Central Rd.; Niagara Falls to Chicago.

low cost of construction was of much more importance than low grade operating conditions, while another may have been built at later date, when traffic was of such importance as to warrant high construction cost to obtain low grades.

In the following notes reference is made only to certain of the main characteristics, leaving the reader to study for himself the

miles, or 4%, in distance, its length being 460.50 miles, as compared with 487.6 miles between the same points on the Intercolonial. This new road is under construction, but not yet in operation. It was located by the National Transcontinental Ry. Commission's engineers, and will form the eastern connection of the Grand Trunk Pacific Ry., by which company it is to be operated.

the Michigan Central Railroad which runs through a portion of Ontario and Michigan. The sharp depression on this line, consequent on the utilization of the Detroit river tunnel, is overcome by the use of electric locomotives constructed so as to have sufficient power to haul standard trains over the consequent heavy grades.—Engineering News.