As between the carbonized lignite briquette and the merely dried lignite briquette the question is essentially one of cost and market demand. In the latter case only the 25 per cent. of moisture is removed; while in the former the reduction in weight, in moisture and volatile is 50 per cent.; but this loss in carbonizing is more than offset by the by-products obtained.

The estimated cost of the first unit of a carbonizing and briquetting plant, capable of turning out 200 tons per day, or a minimum of 50,000 tons per annum, is \$75,000, including \$15,000 for the drying equipment, consisting of a crusher, rotary dryer, necessary elevators, rotary screen and bins. This is assuming that the lignite mine is already in operation, with switching tracks, etc., and that the carbonizing and briquetting plant can be located alongside the tipple. The expenditure suggested is about as small as would be advisable from a commercial standpoint for the first unit. Additional equipment would, of course, be added as rapidly as was practicable. To quadruple the output it would not be necessary to much more than double the investment.

The estimated cost of manufacturing is:

Lignite, 97,383 tons, at 90 cents\$ Carbonizing (portion chargeable to)\$ Labor, at 25 cents per ton of briquettes	87,644.70 11,686.00 12,500.00
at \$15 per ton, 2 per cent lignite tar pitch	07 500 00
(produced at plant)	4.500.00
Depreciation to per cent on \$75,000	7,500.00
Incidentals, oil waste, etc.	2,000.00
Power (portion chargeable to briquetting plant)	5,000.00
ist, etc. (portion chargeable to briquet-	
ting plant)	2,000.00
Gross and of to and tong of briquettes.	170,330.70

ss cost of 50,000 3.41 Gross cost of I ton of briquettes .....

## TUNNELING AT ROGER'S PASS.

The following table, compiled from data received from Messrs. Foley Bros., Welch and Stewart, general contractors for the Canadian Pacific Railway, on the construction of the five-mile tunnel at Roger's Pass, gives the footages tunneled during the months of November, December and January:

Last end	centre h	neading-		
Nov.	Dec.	Ian.		Formation.
558	523	443	Schist	with some quartzite.
East end	pioneer	heading		
Nov.	Dec.	Jan.		Formation.
529	544	594	Quartz	ite with some schist.
West end	1 nionee	r headin	o	
Nov.	Dec.	Jan.	D	Formation.
817	852	932	Slate w	vith small quartzite bands
West end	loontro	handing		
Nov	Dee	neading	The state	Formation
651	Dec.	Jan.	C1-+	ith small quartzite bands
54	080	701	Slate w	atti sinan quartate se

The January record in the west end pioneer heading is 80 feet over the previous record and 122 feet over the American record established in the Mount Royal tunnel in 1913. The 932-footage will probably stand as the American record for some considerable time.

## SPIRIT LEVELLING IN NOVA SCOTIA **DURING 1913.**

THE summary report for 1913 of the Department of Mines (Canada) Geological Survey, describes spirit level work performed near New Glasgow, N.S.,

during that season. Levels were run in two short circuits in the New Glasgow map-area; the first circuit was along the Intercolonial Railway from Stellarton railway station to the Allan shafts of the Acadia Coal Company, thence via the Albion Mines Railway to the Mc-Gregor slopes of the same company, returning via wagon roads to the starting point; the second continues along the Intercolonial Railway from the Allan shafts to Woodburn station, thence along the wagon road via Weirs Mills to Thorburn, and the Vale Colliery Railway back to the Intercolonial Railway. The instrument work was done by Mr. B. R. MacKay.

A 15-inch Y level and New York target rod were used. The line was run only once. Both levelman and rodman read the rod independently and kept separate notes. Temporary benchmarks were established about every mile, and permanent standard bench marks, with the elevation stamped thereon to the nearest foot, were established about every 3 miles, and at points convenient for local use. The standard bench marks are of two kinds, a plate for use in rock and masonry, and a pipe for use in soil. The plate bench mark is a brass plate, 334 inches in diameter, bearing the inscription "B. M. Geological Survey of Canada, Elevation ..... Feet"; on the under side is a fluted bolt 3 inches long, whereby the plate is cemented into a drill-hole in rock or masonry. The pipe bench mark is a heavy, 3-inch iron pipe 5 feet long, the lower end of which is split for about 9 inches and spread out to form a T-bearing surface; on the upper end is riveted a brass cap bearing the inscription "B. M. Geological Survey of Canada, Elevation above sea ..... Feet." This pipe is buried to within 8 or 10 inches of the surface of the ground.

The elevations are based on mean sea-level as carried to Stellarton, N.S., by the precise levels of the Geodetic Survey of Canada. The datum used was B. M. MCCC of the Department of Public Works. Two determinations of the elevation of this bench mark have been made, one by the Department of Public Works and one by the Geodetic Survey, with the following results; the values given are rod readings without adjustment :---

## B. M. MCCC of Department of Public Works.

Feet.

Elevation as determined by the precise levels of the Department of Public Works ...... 64.91

Elevation as determined by the precise levels of the Geodetic Survey ..... 64.61

The adjusted elevation not being yet available, the Geodetic Survey value, 64.61 feet, has been adopted.

The first circuit, 4 miles long, closed to -0.005 feet; the second, 16 miles long, to -0.123 feet. These closures have been adjusted in the different circuits proportionately to the distance.

The value of the mineral production of the Province of Quebec in 1913 was \$12,918,109, the principal items being :--Asbestos \$3,825,959, cement \$3,361,292, limestone \$1,570,455, copper and sulphur ore \$866,774, and mica \$117,038.