

Bench in hard material of this kind is usually taken out in two lifts of almost equal weight. Sub-bench is drilled from 20 to 40 ft. in advance of the bench. From 4 to 8 holes in a row, with about 6 to 8 ft. face, are used in both sub-bench and bench. One or two rows of holes may be used. Centre holes are shot first, round and side holes last.

In Fig. 2 the method of construction in moderately hard rock with seam, is illustrated. Heading in material of this kind is usually driven by a "hammer cut," using

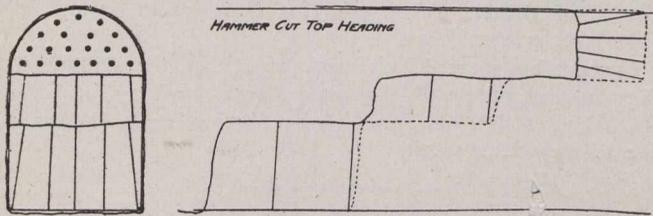


Fig. 2.—Construction in Moderately Hard Rock With Seams.

from 14 to 20 holes 6 to 10 ft. deep. The bottom row of holes is inclined at about an angle of 30 degrees. The bottom row is shot first and each row shown in succession. These holes should be arranged to suit the seams in the material.

Bench in material of this kind is usually taken out in two lifts, but the sub-bench is not as deep as the bench. Sub-bench is best drilled from 20 to 40 ft. in advance of the bench. From 4 to 6 holes in a row may be used with 6 to 10 ft. face. The bench is sometimes taken out in one lift. Centre holes are shot first, round and side holes later.

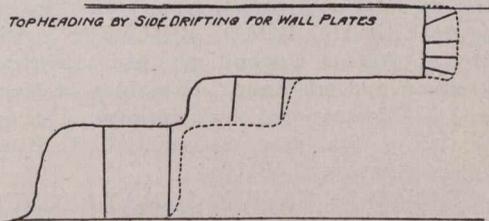
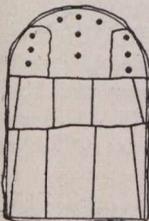
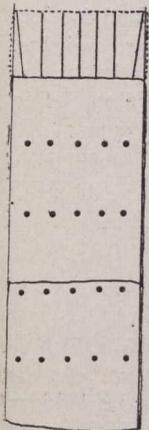
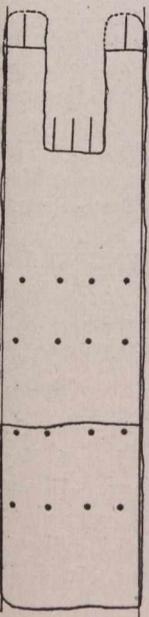


Fig. 3.—Construction in Soft Rock or Hard Clay.

The method of tunnel construction in soft rock or hard clay is shown in Fig. 3.

This method is only used when material is so soft that heading cannot be driven for full length of timber used for wall plate. Drifts about 4 ft. wide and 6 ft. high are driven for each wall plate, and then core is taken out as timber rings are put in. Three or four holes may be used from 3 to 5 ft. deep in each drift. The amount of shooting necessary depends entirely upon the softness of the material. It can often be picked. The core may be soft enough to pick, or may be shot with from 4 to 8 holes, either drilled from face as shown or from sides of drifts.

Bench in this class of material is shot in one or two lifts. Very few holes are necessary.



Coast to Coast

Vancouver, B.C.—The new \$300,000 immigration building is now under construction. Messrs. Snider Brothers and Brethour are the contractors.

South Vancouver, B.C.—A number of water mains will necessarily be lowered in the near future, owing to grading operations now being carried on by the city and adjoining municipalities.

Peterborough, Ont.—The new line of the Grand Trunk Railway between Belleville and Lindsay has progressed so rapidly that steel now extends over half way between Belleville and Peterborough. It is probable that this portion of the line will be completed before the end of the year.

Ottawa, Ont.—On the Hudson Bay Railway steel has now been laid on 180 miles of the total 420 miles to Port Nelson. Grading has been completed on 325 miles. Construction work this season has been handicapped by bad weather, but it is expected that the close of next year will see the steel laid completely to tide water.

Cobalt, Ont.—The new high-grade vein on the Savage property is estimated to average between 7,000 and 8,000 ounces to the ton over an average width of 4 inches. It was located at the 140-ft. level, and has been proven for a depth of 55 ft. This vein was encountered in the cross-cut driving through virgin territory from the 140-ft. level.

Chatham, Ont.—Civic improvements this year have been extensive. The programme in the matter of sidewalks was completed last week. Three reinforced concrete pavements and a bitulithic pavement have been laid in addition to numerous other pavement improvements. The sewerage programme will have been completed by the end of the week.

Montreal, Que.—To the Home Guard has recently been added a company of 250 men from the Canadian Pacific Railway Co., arms and equipment being supplied by the company. Half of the number is being enrolled from the Angus shops and the other half from the Windsor and Place Viger stations. It is intended that miniature rifle ranges will be established at Angus and Windsor station.

Toronto, Ont.—Good progress has been made by the city on the large trunk sewers in Ward 7. The work has been handicapped on both the Woodville Avenue and Humberside Avenue conduits by the intrusion of water, but steam pumps have been constantly in commission, and the work has proceeded without interruption. Both are rapidly nearing completion.

Regina, Sask.—The new Regina jail, a 3-story building of brick and reinforced concrete, has been completed. It is six miles from the city. Power is supplied by two semi-Deisel engines with direct-connected generators. This power is used for lighting, ventilating, water supply, laundry, while a motor is also used for operating the septic tanks at the sewage disposal works.

Fort George, B.C.—The Pacific Great Eastern Railway has now a force of nearly 7,000 men along its route between Squamish and this city, and it is expected that the entire route will be graded before the close of the year. Track will extend to Lillooet by the end of January, and it is hoped, to Clinton, by June. The entire line should be completed from tide water to Fort George by the close of next season.

Vancouver, B.C.—Traffic to the coast by way of the Kettle Valley Railway will likely be accommodated next summer. The Kootenay Central Railway is also well on the way to completion, the swing bridge over the Columbia River, near Lake Windermere, having recently been put into