

tion. If a study of the run-off and water losses of a given drainage basin indicates that these are abnormal, and suggests the probability of watershed leakage, a geologic study of the drainage basin may be made. It is difficult to lay down satisfactory general rules for such a study, but obviously the character, uniformity and depth of the soil overlying the basins, as well as the dip of the underlying rock, are important.

Since the existence of a stream channel perched above the surficial ground water horizon nearly always accompanies watershed leakage, in the form of sub-diversion, a study of the depth of the ground water in wells in regions in which the loss of water is believed likely to occur may be helpful.

In investigating the likelihood of watershed leakage, especially in small drainage basins such as are used for gravity water supplies, the following suggestions may be useful:—

1 Watershed leakage is always from a higher to a lower drainage basin. In case of inversion, higher lying adjoining areas should be examined. In case of diversion, the presence of lower lying adjoining areas which may afford an outlet for the water losses should be looked for.

2 Aside from loss through solution channels in limestone regions, watershed leakage usually occurs only where there is a continuous ground water horizon. It does not occur where there is an impervious rock barrier forming the boundary between the two areas in question.

3 Watershed leakage is more likely to occur between areas overlain by deep beds of sand, gravel, or porous glacial deposits, than between areas with less permeable soils, or with rock near the surface. It is more likely to occur in regions underlain by limestone and sandstone than in regions underlain by shale or granite. It is more likely to occur through rocks of moderate dip than through horizontal strata—and it is more likely to occur through broken, seamy and fissured rocks than through compact uniform beds of rock.

4 It is more likely to occur between basins with low, poorly marked watershed divides than between steeper areas. The configuration of the surficial ground water table generally follows closely that of the overlying topography, and the topographic forms, as well as the geologic conditions, should be taken into account.

Summarizing:—The shallower the soil mantle, and the closer to the surface the rock, the steeper the slopes, and the more impervious the soil and rock, the less is the likelihood of serious watershed leakage.

GAS AND OIL FIELDS OF ALBERTA

D. B. DOWLING, S. E. Slipper and F. H. McLearn are the authors of a memoir entitled, "Investigations in the Gas and Oil Fields of Alberta, Saskatchewan and Manitoba," recently issued by the Geological Survey Branch of the Department of Mines. D. B. Dowling deals with the structure and correlation of the formations underlying Alberta, Saskatchewan and Manitoba. The geology of southern and central Alberta is described by S. E. Slipper, and F. H. McLearn writes on the cretaceous deposits of Peace and Athabasca valleys. An appendix gives the records of strata of some fifty-two selected wells, compiled by D. B. Dowling, and the memoir is illustrated by a number of sketch maps and figures showing well sections.

Charles Henderson, of Welland, Ont., was appointed chairman, and A. Hyatt, of Ridgeville, secretary, of the Suburban Road Commission for the city of Welland, which met for organization on January 19th. The commission fixed the limits of the roadways over which their jurisdiction will extend, and the work done by the commission will be under the superintendency of the County Road Superintendent. Funds for the work of the commission are made up in the following manner: For road-building—County, 30%; city, 30%; province, 40%. For road maintenance—County, 40%; city, 40%; province, 20%.

VANCOUVER HARBOR BOARD EXTENSIONS

FROM the Great Northern docks to the North Vancouver ferry landing has become the ambitions of the Vancouver Harbor Board. The entire plan, when completed, will commence at the Great Northern docks, run along the property now owned by the Weaver Estate, the Great Northern waterfront, the city of Vancouver, across Heatley Avenue, along the Hastings Mill site, the small parcel owned by the C.P.R., and including the Grand Trunk Pacific docks. This would give the government and the National Railways nearly a mile of water frontage, and at several points would permit of overhead approaches to all the docks by the railways.

It is understood that representatives of the Great Northern Railway have appeared before the Harbor Commissioners and offered that portion of the company's property to the west of the present Great Northern docks for a sum equivalent to the original cost of the property, plus the taxes and the interest on the money invested. This will bring the price of the property, it is said, under \$800 per foot and will give the Harbor Board about 800 feet of water frontage in a westerly direction to a piece of property about 100 feet wide owned by the city of Vancouver adjacent to the Heatley Avenue wharf.

The purchase of this land from the Great Northern Co. would be but the first unit in the development of Burrard Inlet, and further units, according to the discussion recently, would include continuing the improvement work west around the Hastings Saw Mills site, the acquiring from the Canadian Pacific Railway Co. of a small parcel of land owned by that company and lying between the Grand Trunk Pacific docks and the Hastings Saw Mill property. With the acquisition of the Grand Trunk system by the Canadian government it is anticipated that the Grand Trunk Pacific docks will come under the jurisdiction of the Harbor Board. This will give the port improvement scheme of Vancouver a clear right-of-way from the Great Northern docks to the North Vancouver ferry landing, which has on its westerly side about a mile of C.P.R. property. Thus two miles of the south shore of Burrard Inlet would be taken up.

COMMISSION TO INQUIRE INTO STRIKE OF MONTREAL WATERWORKS EMPLOYEES

MATTERS are moving rapidly towards a settlement of the waterworks strike in Montreal and the difficult situation which has arisen therefrom. Both the Trades and Labor Council and the city appealed to Quebec, asking the appointment of a commission to inquire into and report on the strike of the aqueduct employees. The Lieutenant-Governor acted promptly, and has appointed a commission, which includes Mr. Grant Hall, vice-president of the C.P.R.; Mr. Joseph Quintal, of the Chambre de Commerce; Mr. Aime Geoffrion, K.C., and Messrs. J. T. Foster and Joseph Gauthier, president and vice-president, respectively, of the Trades and Labor Council. Replying to a request from a delegation of the employees of the aqueduct department, who inquired if the commission was ready to take back all the men, and under what conditions, the following statement was made:—

"The commission replied there could be no question of taking back the old employees of the aqueduct department before the responsibility of the strike had been established, and they asked the men to support the appeal to Sir Lomer Gouin, that a commission be appointed as soon as possible, and that a decision be rendered within the shortest possible delay.

"The commission declared they were in sympathy with the employees who had been drawn into the strike, but that the commission had no sympathy for those who were the instigators of the strike.

"The Administrative Commission gave a summary to the delegation of the negotiations that had taken place between the commission and the union delegates, and they emphasized the fact that the negotiations had not been completed when the employees quit work."