

ed on the small number of accidents as well as the rapid prosecution of the excavation.

The power house is situated on the North Arm of Burrard Inlet at sea level, and is built of stone, with a concrete foundation. The only suitable site for this building was on the edge of a rock bluff, which made it necessary to excavate about 15,000 cubic yards of granite before starting the foundation of the building. The capacity of the power house is 12,000 h.p. in four units of 3,000 h.p. each. There are at present installed only three units, and the water is supplied under a static head of 400 ft. The arrangement of the water wheels and the generator for each unit is extremely simple, consisting of a hollow shaft, with the generator set in the centre and a Pelton water wheel at each end, the whole revolving on two ring oiling bearings, kept cool by a water jacket and also by a stream of water passing through the hollow space in the shaft. The generators are 3-phase, 60-cycle Westinghouse alternating current machines with revolving fields, and run at 200 revolutions per minute, the regulating being accomplished by governors operating deflecting needle nozzles, the needles being adjusted by hand for average load conditions.

The transformers are of the air-cooled type, placed in a separate concrete building, which also contains the high potential switches and appliances. The voltage here is stepped up to 20,000 and transmitted under this pressure to the sub-stations at Vancouver, Burnaby, New Westminster and Lulu Island. The transmission line has a length of about 16 miles to Vancouver, and consists of a double line of poles built in accordance with standard construction for high potential wires. It presents a notable feature in the crossing of Burrard Inlet near Barnet. The span here is 2,750 ft., and the current is transmitted through steel cables, which are suspended 150 ft. above sea level at their lowest points. On the southerly end of the span are two steel towers, each 140 ft. in height and set on top of a small knoll, bringing the top of the towers 300 ft. above sea level. There are some unique features in the anchoring and the insulating of these cables, but space does not permit of these details being given. Provision has been made in the head gates at the dam and the location of the power house and pipe lines for an ultimate development and utilization of 30,000 h.p. This large amount of power, if used continuously, would be somewhat in excess of the capacity of the tunnel, but as commercial peak loads are only of comparatively short duration, the total power is made attainable by means of the large balancing reservoir which nature has provided in the creation of Trout Lake.

The work of organizing the company and ascertaining the possibility of developing this water power, and afterwards the careful examination into the feasibility of the development proposed by the engineers, has been accomplished by J. Buntzen, as General Manager of the B. C. Electric Ry. Co., the parent company of the Vancouver Power Co., assisted by R. H. Sperling, advising electrical engineer, and to R. M. Horne-Payne, Chairman of the B. C. Electric Ry. Co., is due the credit for finally financing the scheme. The construction work has been performed under the supervision of W. Meredith, of San Francisco, Chief Engineer for the Company, and E. B. Hermon and H. M. Burwell, of Vancouver, engineers in charge of construction.

The name of Trout Lake has recently been changed to Lake Buntzen.

The new line of the Minneapolis, St. Paul and Sault Ste. Marie Ry., about completed between Thief River Falls, Minn., and Kenmare, N.D., has been named by W. R. Callaway, G.P.A., the Wheat Line of North Dakota.

American Street Railway Association.

This association held its 24th annual convention at Philadelphia, Pa., Sept. 25 to 30, W. C. Ely, of Buffalo, N.Y., President, in the chair. Apart from the discussion of a number of papers, the only important feature of the gathering was its re-organization as the American Street and Interurban Railway Association, and the election of W. C. Ely as President. In the course of his address the President gave a brief review of the advance of electric traction during the year, referring particularly to the growth of the interurban lines. With this growth, he pointed out the necessity of the companies owning the greater part, if not all, of their right-of-way. It was impossible to run cars at high speed along the highways, owing to the restrictions imposed by municipalities. Altogether the provision of a private right of way was most desirable, and this should be secured at the outset, of sufficient width to provide for a double track. In 1904, there were in the United States 993 electric lines, having a total of 30,187 miles of track, operating 75,904 cars and having a total capitalization of three and a quarter billions of dollars, while in Canada there were 42 roads with a total of 900 miles of track, operating 2,639 cars, and a total capitalization of \$69,500,000. The Association now has 206 members, an increase of 10 since 1904, and the cash balance on hand was \$6,732.20.

T. C. Pennington resigned the Secretaryship, after having acted in that capacity for 10 years, it having been decided to maintain headquarters in New York city, and that the Secretary should devote the whole of his time to the duties of the office. The annual banquet was held Sept. 29, at which G. T. Blackstock replied on behalf of "Our Canadian Brethren."

In connection with the central organization a number of sectional associations have been formed, the annual meetings of which were held at Philadelphia during the same period.

STREET RAILWAY ACCOUNTANTS' ASSOCIATION.

The ninth annual convention of this Association was held Sept. 28-30, W. G. Ross, Managing Director Montreal Street Ry., the President, occupying the chair. In his address he referred to the fact that the membership had increased from 25 at the inaugural meeting in 1897, to 150 at present. After referring to the important work done in formulating the "Standard Classification of Accounts" and "Standard Form of Report" and the indorsement of these standards by the National Association of Railroad Commissioners, Mr. Ross proceeded to outline some of the things that can now be taken up to advantage. "In connection with the various forms and records, one of the important matters still to be followed up and dealt with, is the taking up of these forms and records with the departments they affect, and as new associations are formed, such as the Mechanical and Electrical and Claim Agents, the committee of our Association appointed for this purpose should follow this matter up vigorously so as to endeavor to arrive at a standard set of forms that can as far as possible be used by all companies. Another question that should be given serious thought is the one of depreciation. This matter has been mentioned by previous presidents, especially by H. C. Mackay. Whether any conclusion can be arrived at or not as to the fixed amount necessary to provide for such a fund, it is difficult to say, owing to the various conditions existing with the different companies, but it is a question well worth our best thoughts, especially when we note the collapse of numerous companies within the last year or so. There is another matter which perhaps might well be taken up by the Committee on Standard Forms of Reports and Accounting, that is, enlarging to a con-

siderable extent the statistical information for our monthly and yearly reports. It seems to me that statistical information is of the very greatest importance to every road, not only on its own comparisons, but for comparisons with other companies."

The American Railway Mechanical and Electrical Association held its annual meeting at Philadelphia, Sept. 25 and 26. The membership roll includes 38 company members, 134 active members and 31 junior members, and the finances were reported to be in a satisfactory condition. During the year among the new members added were H. H. Boyd, Assistant Electrical Engineer, C.P.R., Winnipeg, to the active list; Ottawa Railway Co., Ottawa; and Toronto Ry. Co., Toronto, to the company list.

The American Association of Street Railway Claim Agents met Sept. 27, and discussed the question of Fakers, Malingerers and Ambulance Chasers." The Association was organized in 1904, with eight members, and now has a membership of about 60.

Grain Elevator Notes.

The farmer's elevator at La Riviere, Man., was burned out recently. There were about 8,000 bush. of grain in the elevator at the time.

An action has been entered by Philadelphia bankers to recover \$38,360 unpaid interest and sinking fund on the Great Northern elevator at Quebec.

A site has been secured at Vancouver, B.C., for the erection of a grain elevator there. It is proposed to erect an elevator of 150,000 bush. capacity as an experiment, and to have it ready by Dec. J. E. and E. C. Hall, of Brandon, Man., are the promoters of the enterprise.

The fitting up of the grain elevator at Prescott, Ont., for re-opening was completed at the end of Sept., and cargoes were received early in Oct. The elevator has a capacity of 1,000,000 bush., and has been closed for some years. It is being operated this season by the Montreal Transportation Co.

In connection with the movement of grain from the west for export, a daily newspaper points out it is expected to move 20,000,000 bush. to Fort William and Port Arthur, Ont., by Dec. 5, about which time navigation will close. The elevator capacity at these ports is about 17,000,000 bush.; the elevator capacity at lower lake ports is about 6,500,000 bush., and at Montreal there is accommodation for 2,000,000 bush. The elevators at Montreal it is calculated could load to ocean liners 7,000,000 bush. before Nov. 20, when that port closes. Canadian grain carrying vessels have an aggregate carrying capacity of 3,620,000 bush., or taking into account the time occupied in making the trip to Kingston and Prescott, they could move about 2,000,000 bush. every eight days. The object of the article is to show that the elevator accommodation at Canadian lower lake ports is not sufficient to move the grain as fast as it can be delivered.

SHIPPING MATTERS.

The Empire-Hosanna Collision.

A formal investigation was held at the Wreck Commissioner's Court, Montreal, Sept. 11 and 13, into circumstances attending the collision between the str. Empire (so called), and the tug Hosanna, in the ship channel, off Longue Pointe, Que., Sept. 5, whereby the latter was sunk. The court was presided over by Commander Spain, R.N., Wreck Commissioner, the assessors being Capt. A. Reid, Port Warden and Surveyor to Lloyd's Register, and W. Gauthier, President Montreal Pilots' Association. Judgment was given Oct. 11 by Commander Spain, the assessors con-