electrical apparatus. In addition to the main switchboards there are three panels, each one controlling a motor operating an exhaust fan in connection with the ventilating system.

Four additional panels are used, fitted with instruments to automatically control the temperature of each room throughout the building.

The reproduction of photos of engine, dynamos, and main switchboard, together with a description of the use of each panel, will show how completely the plant is designed to obtain the results required of it. Panels 1 and 2 control and indicate the total output of each machine, respectively, and consist, for each dynamo, of: Voltmeter, illuminated dial, ammeter, rheostat, main switch, 600 amp. capacity, to connect dynamo service lines to their respective bus bars; 600 amp. switch, to connect the bus bars to the five-pole switch, described under panel No. 3.

Panel 3.—Ground Detector.—To test and ascertain if at any time any of the conducting wires either of the dynamo or lighting or power distribution services should become defective in insulation showing contact with piping, or other conducting material giving connection to the ground.

Five-pole, double-throw, six hundred ampere switch, which, when thrown in one position connects the two dynamos in parallel, and when thrown in the other direction connects the dynamos in series for the operation of three-wire service. Two other three-pole, double-throw switches, on this panel supply to the lighting distribution bus bars from either series or parallel connection, and also allow connection with the city lighting service.

Panels 4 and 5 control each a 600 ampere service and deliver the current to the Mining Department of the School, where it is used in electrical furnaces and other experimental work.

Each panel is provided with an ammeter, a circuit breaker which automatically breaks the circuit if at any time carrying more current than the capacity for which it is set, also double throw switches allowing either panel to take the current from either dynamo or from both. One switch on this panel controls current to pilot lamps illuminating each panel of the board, and another connects motors through the building to the power service supplied from either the dynamos or the city circuit.

Panel 6 controls distribution of two services of three hundred amp. each to panel No. 10. Two ammeters indicate amount of current from each service, and six switches (interlocking), allow each service to be supplied from either or both dynamos or from city service. The interlocking device protects either service from being supplied by more than one service at any time. Each service is also protected by an automatic overload circuit breaker. A three-pole switch on this panel forms the connection between city service and special distribution boards in the building.

Panels 7 and 8.—Five special three-pole, fusible, single-throw switches, supplying all the lighting service throughout the building, including the milling and engineering buildings. An ammeter on each panel indicates the amount of light being used.

Panel 9 controls, through two double-pole, fused switches, two special service lines to the engineering building, the current used being indicated by two ammeters. A three-pole, fusible switch controls a three-wire service for the engineering building.

Panel 10 consists of eight fusible 300 amp., single-throw, double-pole switches, connected to various departments for special treating, demonstrating and laboratory work. These switches are supplied with current through a system of interchangeable, flexible, lead-plug switches from three different courses through two service lines from the interlocking switches (panel No. 6), thus making a most flexible service capable of being obtained from many different sources through different channels.

A glass case, recording wattmeter on this panel registers the amount of current which has been consumed from source of supply other than the generating plant.

Three other panels control the operation of motors in the building, each panel having thereon an ammeter, automatic overload circuit breaker, and automatic speed controller.

All metal parts of instruments are finished in black oxidized copper, the board itself being polished and bevelled, "blue Vermont" marble, 2-in. in thickness.

NEW INCORPORATIONS.

Dominion.—Canadian White Co., Montreal, $1,000,000; W. G. Ross, R. C. Smith, R. C. Grant, W. W. Skinner and W. F. Chipman, Montreal. To carry on the business of electrical, mechanical and civil engineers and contractors.

The Duncan Electrical Co., Montreal, $90,000; C. Duncan, W. P. Baird, W. King, F. Loomis and M. T. Williams, Montreal. To deal in electric supplies for traction, telephone and telegraph purposes.

The J. W. Harris Co., Montreal, $150,000; J. W. Harris, W. B. Powell, F. D. Monk, F. X. Durand and C. G. Martineau, Montreal. To carry on business as general contractors.

The Kensington Brandon Land and Development Co., Montreal, $100,000; G. A. Forbes, G. H. Bisset, P. F. Richardson, Montreal, W. H. Olive, Westmount and J. Curry, Toronto. To deal in land, and act as construction engineers and to supply light, heat and power.

The Canadian Manufacturing Co., Montreal, $40,000; L. Rubenstein, E. Goodwill, H. Ward, H. J. Elliot, Montreal, and A. D. Gall, Westmount. To carry on business as machinists and engineers, manufacturing electric motors, dynamos, steam turbines, etc.

Ontario.—The Imperial Cement Co. has increased its capital from $250,000 to $300,000.

The Maple Leaf Automobile and Electrical Manufacturing Co., London, $50,000; J. O. Weldon, G. H. Rapson, D. Ferguson, H. S. Albertson and W. Barton, London.

The Empire Gas and Oil Co., Windsor, $40,000; V. C. Fry, A. G. Gulden, G. W. Videau, C. A. Buhrer, F. D. Andrus, E. Bond and T. J. Quinn, Detroit.

The New Liskeard and Northern Ontario Mining and Developing Co., New Liskeard, $25,000; J. Cox, J. H. O'Brien, J. O. Marguerratt, J. C. Moss, F. W. Haynes, H. Thompson and E. Monaghan, New Liskeard.

Blackford Oil and Gas Co., Windsor, $30,000; F. B. Preston, W. F. McCorkle, W. A. Spitzley, J. H. Brogan and E. D. Preston, Detroit, Mich.

Canadian Fence Manufacturing Co., Woodstock, $250,000; C. A. Brink, N. Stickney, G. Bragg, Township West Oxford; J. B. Murray, West Zorra; T. H. Blatchford, East Oxford. To manufacture stationary and portable fences; also the tools and machiney used in the manufacture of wire, posts, gates, etc.

The Gutteridge-Sullivan Co., Sarnia, $40,000; T. P. Bradley, S. A. Armstrong, T. J. Gordon, J. R. Pierdon and J. Sullivan, Sarnia. To manufacture brick machinery, dies; also to deal in earthenware, pottery, etc.

British Columbia.—The British Columbia Construction and Distributing Co., $25,000; to build and mantain electric works, power houses, etc.

Braim Patent Switch Co., $50,000; to manufacture the device for operating street railway switches from an approaching car.

Col. W. P. Anderson, of Ottawa, chief engineer of the Department of Marine and Fisheries, ex-president of the Canadian Society of Civil Engineers, has been elected a member of the Council of the Institution of Civil Engineers of Great Britain. He is the only Canadian on the council of that institution.

Herbert J. Armstrong has this month opened business as consulting mechanical engineer in Toronto, with offices at 43 Victoria Street. Mr. Armstrong, who has been for several years with the John Inglis Co., of Toronto, will make a specialty of designing and laying out steam plants, and in planning structural work and power distribution systems.