

there obtained in 1891 the post-graduate degree of E.E. In the intervals of his college course the young student acquired a fund of practical knowledge with several well-known electrical companies. Shortly after receiving his degree Mr Owens was appointed assistant professor of electrical engineering in the University of Nebraska, and in 1894 he was made professor. In the meantime he served as one of the judges of electrical exhibits at the World's Fair. Professor Owens has recently been elected to a Tyndall fellowship by Columbia University, and was director of the Bureaus of Electricity and Machinery at the Trans-Mississippi Exposition at Omaha. He is a member of the Western Society of Engineers, the American Society of Mechanical Engineers, and the Council of the Society for the Promotion of Engineering Education, and vice-president of the American Institute of electrical engineers. He has contributed important articles to engineering societies and to the electrical press on the subject of Electricity and of Technical Education.

Prof. Ernest Rutherford, who has been appointed to the W. C. McDonald chair of physics in McGill University, recently vacated by Prof. Callendar, was a student at Canterbury College, Christchurch, New Zealand, for five years, obtaining the degree of B.A. in the University of New Zealand, in 1892; the degree of M. A. by examination in 1893, with double first-class honors in mathematics and physical science; and the degree of B.Sc. in 1894. During 1894 and 1895 he was engaged in research work, and in the latter year was awarded an 1851 Exhibition Science Scholarship to enable him to continue his researches in England. Proceeding to Cambridge, he has carried on investigations in experimental physics in the Cavendish Laboratory for the past three years under the direction of Prof. J. J. Thomson, and in June, 1897, was awarded the degree of B.A., and in the following December the Coots-Trotter Studentship, in recognition of his researches. Prof. Rutherford's experience in teaching has been gained in New Zealand and by acting as demonstrator of physics in the Cavendish Laboratory. In addition to a research upon Uranium and Thorium Radiation, which has occupied his attention during the past year, Prof. Rutherford has completed several important researches. Among them may be mentioned: An investigation on the use of a magnetic detector for the investigation of electrical waves; with this detector he was able to send signals by means of electric waves, and without wires, across about  $\frac{3}{4}$  of a mile of the mostly densely-populated part of Cambridge. This was done nearly three years ago, and before the recent attempts at wireless telegraphy. A series of papers in *The Philosophical Magazine*, on the electric properties of gases under the influence of Roentgen rays, Uranium rays, and ultra-violet light. These papers are characterized by Prof. Thomson as being distinguished by the importance of the results obtained by the ingenuity displayed in the design of the apparatus, and by the grasp of the physical principles shown in the interpretation of the results. Prof. Rutherford's work is well known on the Continent of Europe as well as in England.

#### LITERARY NOTES.

The October number of *The Canadian Magazine* maintains the standard of that publication. The brilliantly and artistically colored cover announces seven short stories and seven leading articles. These are duly found within, together with a couple of poems by Canadian writers.

The C. W. Hunt Company, West New Brighton, N. Y., has just issued three new catalogues from the press. They are: No. 9,805—"Industrial" Railways; No. 9,807—Mast and Gaff Fittings, Coal Tubs, Hoisting Blocks, Wheelbarrows; No. 9,811—Manila Rope for Hoisting and Power Transmission.

The Canadian General Electric Co. has just issued a catalogue, which is neat and attractive in a high degree. The different departments are fully taken up and the various apparatus fully described. Among other interesting features of this catalogue is the department devoted to electric heating. There are innumerable appliances which are for the comfort of mankind, from flat irons to chafing dishes, and are fully described and illustrated.

The Street Railway Journal for September, 1898, is largely devoted to matters of interest to the delegates to the fifteenth annual convention of the American Street Railway Association, held in Boston, September 6th

to 9th. The street railways of Boston are fully described. From cover to cover the issue is a triumph of journalism. From a business standpoint the 284 pages of advertisements are sufficient tribute to the skill and success of the management, while the 119 pages of reading matter are contributed by the most able writers and are magnificently illustrated. The full report of the proceedings of the convention is found in the October number of the Journal.

Hand-book of Corliss Steam Engines, by F. W. Shillitto, jr., is a very interesting and instructive work of over two hundred pages, which describes in a comprehensive manner the erection of engines, the adjustment of the Corliss valve gear, and the care and management of Corliss steam engines. Under the head of erecting the following subjects each receive discussion in a separate chapter: Preparing foundations, reference lines for locating, templates, foundations, placing main parts in position, lining and leveling, assembling the moving parts. Under the head adjusting Corliss valves the following chapters are found: The valves, valve gears, squaring the valves, dash pot rods, eccentric rod, rocker arm and reach rod, centring the engine, setting the eccentric, adjusting the governor, indicator diagrams, a few pointers on double ported valve and long range cut-off, tables and memoranda, etc., as well as seven chapters describing different varieties of the Corliss engine.

#### THE DISPOSAL OF SEWAGE IN EUROPE.

At the meeting of the American Public Health Association recently held in Ottawa, Thomas Macfarlane, chief analyst, Inland Revenue Department, read a paper entitled, Remarks on the Systems of Refuse Disposal in Various European Cities. The cities in question were London, Birmingham, Manchester, Oldham, Rochdale, Glasgow, Hawick, Berlin, Leipsic, Freiberg, Bremen and Braunschweig, all of which the author visited in the summer of 1896. The essential features were described of the ten different systems of disposal in use in these cities, and their disadvantages and merits were commented on from the point of view of the agricultural chemist. Nearly all of these systems leave a great deal to be desired, and Mr. Macfarlane tries to indicate the direction in which he thinks improvement would be possible. In large cities where access to the sea is impossible, and where the water carriage system for excreta has been adopted, it is suggested that storm and surface water should be excluded from the sewage, thorough comminution effected of the solids in the latter, and utilization of the eradicating constituents on sewage farms of sufficient extent. For other cities, towns and villages the author recommends the introduction of the Mop-Litter system as practiced in Bremen, and other German towns. As examples in Canada of these two methods of treatment it is pointed out that the first is in use at the asylum for the insane in London, Ont., and the second at Grand Hotel, Caledonia Springs.

#### EUROPEAN METHODS OF TESTING SEWER PIPES OF CEMENT AND CLAY.

The International Association for the Testing of Materials, in 1896, appointed a committee to investigate the methods of testing sewer-pipes of cement and clay, as up to that time there had been no uniform method of testing, and practice varied widely. Mr. Gary, chief of the section for the tests of materials, at the test laboratory at Charlottenburg, was directed to take charge of this investigation, and his preliminary report is published in "*Les Matériaux de Construction*," Nos. 23, 24, the official organ of the association. Mr. Gary, in 1895, had already investigated, for the German Association of Manufacturers of Portland Cement, the methods employed by governments, municipalities and individuals in testing the strength of cement pipes. He found that these tests varied in each case, and none were regarded as complete for the purpose intended. Similar conditions existed in other countries than Germany.

In the investigation to be made Mr. Gary concluded that the points to be determined were as follows: The resistance to internal and external pressure; impermeability; resistance to the attack of acids; and the wear upon the interior by sand passing with the water. The tests should then mainly determine the bursting and crushing strength, and the texture and