parisons should not be drawn between two cities in regard to the cost of the electric light, as in one, perhaps, the generators are run by water power, while in the other they are run by steam. It is absolutely impossible to make the latter system as cheap as the former.

Hon. Judge Armstrong next gave a report for the Committee on Legislation, which aroused quite a discussion among the members in regard to the attempts made to pass various bills in the State Legislatures, detrimental to the interests of the Society, some contending they were done for revenue purposes only. The report on the World's Fair was very interesting. Mr. J. A. Hornsby, secretary of the Electrical Section, spoke of the various plans formed for the electrical work, illustrating his words with a large plan of the grounds. He also spoke of the efforts being made to hold a grand International Electrical Congress in Chicago during the Fair. The report on Underground Conduits and Conductors was found too lengthy, as the time was getting short, so it was decided to have it at the next meeting.

Judge Armstrong next read a portion of the report on Safe Wiring, which showed a very carefully prepared list of rules relating—Class A, to Central stations for light or power, giving some four rules relative to the setting up of generators or motors, eight rules on care and attendance, four on switch-boards, three on resistance boxes, and equalizers, and five on the setting up of lightning-arresters. It also says that series and alternating circuits should be tested every two hours to discover any leak to earth of the current while in operation. Class B—Arc (series) systems. To this class belong the rules for the proper construction of overhead conductors showing how they should be constructed and secured. It gave the following formulæ for the soldering fluid to be used in making connections:—Saturated solution of zinc, 5 parts; Alcohol, 4 parts; Glycerine, 1 part. It emphasized the fact that telegraph, telephone and similar wires, must not be run on the same pole as wires of either high or low potential, which also should not be run on the same pole.

Seven rules were specified for interior conductors in this class, and six for arc lamps, giving a careful description where and how to set up and run arc and incandescent lamps in a series circuit.

Class C comprised the incandescent low-pressure system and gave valuable rules for outside overhead conductors, underground conductors, inside wiring, special wiring, what interior conduits must not be, what double-pole safety cut-outs must be, giving a table of Brown & Sharp's, Birmingham and Edison Standard gauges with carrying capacity of the wire, switches, arc lights on low potential circuits, fixture work, electric gas-lighting, pendents and sockets.

To Class D belong the rules for the alternating systems; as to the placing of converters or transformers and putting up of the primary and secondary conductors.

Class E covered the electric railway giving some general rules for ground return, the size and position of placing trolley-wires, car-wiring, lighting and railway power wires.

Class F comprised batteries; the rules applying to the dynamo-circuit developing the same difference of potential must be followed.

To Class G belong some miscellaneous rules as to the testing of a circuit, the placing of lightning arresters, and the proper protection of telephone, telegraph and other instruments against the increase of current arising from the cross of their line, with any electric light wire, etc. The meeting then adjourned.

THIRD SESSION, Wednesday, Sept. 9th, from 10 a.m. to 2 p.m.

The third Session of the Association abandoned the Windsor Hall and met in the Ladies' Ordinary of the Windsor Hotel. The first order of business was the discussion of M. T. C. Smith's paper, read at the Providence meeting on "The Distribution and Care of Alternating Currents." The general discussion that followed was to the effect that the most economical method was the overhead running of wires, and that the strong objections that had been raised to that form of wiring, were chiefly through careless and inefficient work.

The next paper read was on "Central Stations operated by water power," by Geo. A. Redman, Superintendent of the Brush Electric Light Company of Rochester, N. Y. Mr. Redman's paper treated admirably the system of operating Central Stations by water-power in the city of Rochester. The essayist referred to the gradual diminishing of the water supply owing to the destruction of the forests, and the method adopted for storing up water during the rainy season, for use in the dry. He described the older forms of water-wheels, such as the paddle and flatter wheels which only used the impulsive action of the water, and then the improved forms of Leffel, Victor, Lesner, and Success, which are used to a great extent to-day. There is a demand for good and efficient turbines. They should be constructed so as not to impede the velocity of the water more than one-third, and made of the best phosphorous bronze in order to stand the wear and tear. He recommended the use of horizontal turbines rather than vertical ones, as the former are much easier to take care of and the dynamos can be belted directly to them, while in the vertical a large amount of gearing is necessary. A number of small turbines is better to operate than one large one, on account of the less likelihood of the shutting down of power when a break occurs. He described the former equipment of the Brush Company when operating the lower falls of the Genesee River, which consisted of two buildings on the west side of the river, operating two 30½ inch Leffel, two 20 inch Victor, and one 40 inch Leffel turbine; the first four turbines under 94 feet head, and the latter under 28 feet, producing a total horse-power of 2,500. This station was used for five years and then a new one was built operating 15 double 15 inch horizontal Lesner turbines under 90 feet head, giving a total power of 3,360 horse-power, using 6.95 cubic feet of water per minute per h. p. Only one turbine was damaged in four years. For reserve power they have a 600 h. p. Cooper-Corliss engine. Records are taken of starting and stopping of each turbine, of the speed and load on them, and of any variation in height of water. The power is supplied at a very low figure as street arc lights at 27 cents per night; commercial arc lamps per evening 25 cents; 16 c. p. incandescent lamps $5 to $20 per annum. The Edison Electric