

**The Necaxa Development of
the Mexican Light and
Power Company***

BY PROFESSOR WILLIAM L. HOOPER

The Necaxa development has its origin in the mountainous regions of Mexico. By an elaborate system of storage reservoirs, dams, dikes, tunnels and inverted steel siphons, extending back into the country 25 miles, the waters of several rivers, including the Necaxa, are diverted into one valley, and there directed onto the turbine wheels which drive the large electrical generators supplying power to the surrounding country. The City of Mexico has approximately 400,000 population, with another 100,000 near by, and it is planned to supply all the electrical needs of this population from the Necaxa development. Perpetual rights have been granted by the Mexican government and many millions of dollars are still to be expended in perfecting the system. Due to the warm gulf winds condensing upon the plateaus there is an average rainfall of 135 inches per year, so that with a large storage system such as is being constructed at Necaxa, the full output of the plants is available throughout the year. The most important of the dams is the Necaxa, which is 190 feet high, being the highest earthen dam in the world. It is 1,000 feet wide at the base, and a quarter of a mile across at the crest. When entirely completed it will impound 1,590,000,000 cubic feet of water. It will give some idea of the value of every cubic foot of water when it is understood that one cubic foot per second over the Necaxa Falls now means 100 h.p. on the switchboard, and when the system is completed with two other power houses using the same water, one cubic foot per second will mean approximately 300 h.p. The upper Necaxa Falls are 460 feet high, and the lower falls are 740 feet high. The connected load now on the Necaxa lines is 90,000 kw., and it is planned

ultimately to take care of 200,000 h.p. The present generating plant consists of six dynamos, each of 6,000 kw. capacity, driven by impulse turbine wheels, which were originally of 8,200 h.p., but are now rebuilt for 12,000 h.p. Generators of 12,000 kw. capacity are now being built for the Necaxa system. These machines will be able to develop 15,000 kw. continuously, and will be the largest water-driven generators in the world. There will be four nozzles directing water on the buckets of each of the water wheels driving these generators. The transmission system consists of two separate pole lines, each carrying two three-phase circuits. The standard towers are of steel, and are 50 feet high, with a ground wire installed at the top of each tower, and making an equilateral triangle with the wires of the two power circuits. The high tension voltage of the system is 80,000, carried on 18-inch Thomas pin insulators. A telephone line is strung on the same steel towers, and it is stated that no serious disturbances have yet been attributed to the proximity of the power lines.

Inventors' Guild

The dissatisfaction with existing relations between the inventor and the patent law has led to the organization of the Inventors' Guild, the object of which is stated in its constitution as follows:

"The object of the Guild is to advance the application of the useful arts and sciences, to further the interests and secure full acknowledgment and protection for the rights of inventors, to foster social relations among those who have made notable advances in the application of the useful arts and sciences."

The membership of the Guild is limited to 50, and the officers are:

Ralph D. Mershon, President, 60 Wall St., New York; Charles Wallace Hunt, 1st vice-president; Charles S. Bradley, 2nd vice-president; Thomas

*Abstract of an address before the Pittsfield Section of the A. I. E. E. on December 8, 1910.