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THE ELECTRIC LIGHTING CONVENTION.

When the National Electric Light Association was organized a few years ago, its members were few and its meetings attracted little attention. Electric lighting was in its infancy; its promoters, struggling hard to discover economical means of distribution, were not inclined to recount their experience to a meeting of rival promoters, and so it was that the first attempts that were made by zealous and long-sighted persons to form an electric light association met with little favor. There was, however, much money invested in the electrical lighting business, and the several companies expended considerable sums each on its own account for experiments, because the science of economical lighting being as yet in its infancy, all the processes from the dynamo itself to the distribution and measurement, were crude, awkward, and unreliable.

So silent and secret had been the investigations, and so diverse their experiments, that where one company had been provided with an improved method of winding the dynamo, another had hit upon improvements in distribution, in control of current, carbon setting, incandescence carbon making, etc. Taking up the advertisements of the electric lighting companies four years ago, we find one claiming superior apparatus for one thing and another for another; these being the parent companies engaged in selling material and rights.

It took two years and a deal of argument to make it clear to these electric lighting promoters that it would be of advantage to all of them to meet together and freely discuss their experiences, the nature of the obstacles which interfered, and the means, if any, that proved effective in their removal. Two years ago last winter the National Electric Light Association held its first meeting. There were about fifty members present. Papers were read on various subjects relating to the scientific and commercial departments of electrical lighting companies, and lengthy discussions as to the best means of removing certain obstacles in the way of economical generation and distribution of the current. This comparison of experiences, the experiences of practical men, be it said, bent upon placing the electric lighting business on a paying basis, was as valuable as it was interesting. The hard headed, long sighted business men present discovered that they received quite as much intelligence as they imparted and took away quite as much as they brought with them. This led others to join, until now nearly all the electric lighting men, certainly all the principal ones, are members of the association; and at the convention, which meets at the Parker House, Boston, on the 9th, 10th, and 11th instants, it is expected that there will be at least two hundred members present, and there will be read some highly interesting and important papers on administration, on steam engine types and their relative advantages in generating stations, high and low tension currents, on voltaic arc and incandescence lighting, and other matters connected with the work of operating electrical lighting plants.

Among the most interesting topics that will be brought up for discussion before the coming convention will be as to the distribution of electrical energy for the running of shafting, elevators, and the like, and another will be motors. Many electric lighting companies sell power during the day, and thus keep their engines employed all the time. As we know, there is a limit to the amount of power that can be economically furnished to one consumer, the limit being increased year by year, as apparatus for distribution becomes more and more perfect. So important an advance has been made during the past twelve-month in this direction, that the subject is attracting more attention than ever before. Indeed, it is likely that, in the near future, small factories and workshops lying within the distributing district of an electrical lighting station will find it cheaper, as well as more convenient, to take their power from off a wire and through a dynamo than directly from a steam engine. It will save them the wages of engineer and fireman, save them in fuel and in other ways.

The two hundred electric lighting men who are expected to assemble in Boston will represent many millions of invested capital; the electric lighting business having grown, like the telephone, within a few years, from really insignificant proportions to a principal industry. The voltaic arc lighting companies alone use 50,000,000 carbon points—one New York company alone using 1,000,000. Yet it is only a few years ago that there was much opposition in the press and in the minds of the general public against electric lighting, especially voltaic arc lighting. Clever writers showed, be it said with better rhetoric than science, that electric lighting furnished an imminent danger to life as well as to property, and the terrible things that were alleged against cross-circuited currents were calculated to startle the uninformed. That was when arc lighting was in its infancy. To-day, the principal squares and thoroughfares of the metropolis are lighted by it, and there is serious talk of doing away with the gas street lamps; it girdles the city, and stretches in a long chain of light across a continent. Yet not a complaint is heard.

Every considerable city or town in the country is

either lighted by it or is considering the subject. Almost every great building going up has the two little wires protruding out of the walls in a hundred places, showing that the little incandescence lights are to take the place of gas. Perhaps most remarkable of all is that the coming of electrical lighting has not seriously hurt the business of the gas companies. Indeed, in many, very many, cases it has helped the gas companies, because, since its arrival the public have got used to having more light, and those using gas have turned on more burners to make up for the unwonted illumination about them.

Hiding of the Panama Canal Embankments.

Recent advices from Panama show that serious injury to important portions of the excavations has been occasioned by the sliding down of the embankments, due to heavy rains. In some places the great ditch has been measurably refilled, and at these points it will have to be dug out a second time at great cost. This occurrence was foreseen by Lieut. W. W. Kimball, U. S. N., when he examined the canal works in 1885. His words given in his official report, made in January, 1886, are almost prophetic, as follows:

The only other point in the plan that seems to me impracticable is the placing of the canal, the deflection of the Rio Grande and the Panama Railroad, in the narrow valley between Culebra and the Cerro Coyo, where the substratum of slipping clay is found, and where the river must be so near to and so much above the canal, with the railroad so close to the river. I cannot understand what will prevent the deflection and railroad from sliding into the canal, when it is dug, and it would seem that these would have to be carried through the hills to the right, if the river cannot be turned into the canal.

The methods of work have been indicated more or less in detail in the reports of sections, but from a broader point of view, in regarding the work as a whole, a few other points demand consideration.

The general method, with some notable exceptions, as for example the dredging in the low ground at Colon and Gatun, has been to reduce the higher levels in the canal, dumping the spoils where most convenient, but oftener into the bed of the Chagres, and leaving the Barrage and deflections of the upper Chagres for the future. The dumps have been placed 50 m. outside the canal banks, but in many places the slopes of the hillsides are such that there must be a considerable washdown into the canal. Where the dumps are in the river, the current, of course, takes down a considerable quantity of spoils, which is to some degree deposited in the dredged portion of the canal, and which will have to be dredged out again. This operation will have to go on till the river is controlled and turned out of its course, and to me it seems singular that more work has not been concentrated on the deflection of the upper Chagres, so as to turn the river from its course as soon as possible. The deflection being cut, the dumps from the works in the canal could be utilized for building the numerous embankments in the bed of the river, none of which have been begun, and all of which, as regards the upper Chagres, must be in place before the river is controlled. This much accomplished, the river bed not needed for deflection section could be used for dumping into without the possibility of there being any trouble from deposit in the canal. The longer this question is left unsettled, the greater will be the damage done by floods. It is true, the damage by the high water last December was only some tens of thousands of dollars, but it is an indication of what may occur in the future, and still the Chagres deflections are hardly begun. On the Panama side of the divide, where dredged work has nothing to fear from washdown, and where the opened canal would be most useful for removing spoils, no dredging has been done.

The lack of power drills, the seemingly too extensive use of small material, the want of good switching and double lines for spoils trains, and the ineffective excavators have all been mentioned in this report; all of which would seem to indicate that the work is being done in a slower and more expensive way than is necessary. The only explanation I have heard is that for financial reasons it was considered best to show as soon as possible a good cubic extract from the basin of the canal, and that consequently work was pushed with such material as could be easily secured, much of it small, and some of it, especially excavators, of a kind designed for Suez but not at all suitable for Panama.

Mexican National Railroad.

This road, which has met with various vicissitudes, was sold in May to the Louisville and Nashville Railroad Company, and will become a portion of the already extensive Louisville and Nashville system. The line has about 950 miles of track, and is 3 feet gauge; it will probably be widened, however, to give a through route for the Louisville and Nashville to the city of Mexico. The Louisville and Nashville Railroad Company owns 1,696 miles of road, operates 270 miles under lease, and has a total mileage—owned, operated, and controlled—of 3,825.57 miles.