

in having their respective interests protected fully and impartially, and a mutually profitable and agreeable understanding promoted. If the results of the investigation show that improvement is warranted and feasible, then let such improvement be made. There should be no reason why central stations should be behind the times, or be commercial failures any more than other industrial enterprises, and if through any avoidable mistakes or errors the owners persist in forcing an unsatisfactory and needlessly expensive service on the community, it is plainly the duty of the citizens of that community to endeavor to set matters on a better basis. And conversely, if the company honestly will make every effort to do its work well and in good faith, it certainly has every right to expect and demand good faith from the municipality.

In the majority of instances of disagreements existing between municipal authorities and the central station owners, the trouble is due in a great measure to misconceptions and exaggerated ideas arising through technical ignorance on the part of the former, and often a mutual distrust of the other's intentions and motives, on the part of both, with consequently disastrous results to the vested interests of the owners when the power of a majority is taken advantage of by the municipality. To instruct the authorities sufficiently to enable them to conduct an impartial and competent inquiry into the workings and methods in vogue in the local central station is out of the question, while to expect them to blindly accept the arguments and statements of the owners is in the majority of instances equally inadmissible. The establishment of a provincial board of industrial commissioners, capable of technically inquiring into and competently advising municipalities on such matters, would seem to be the most advantageous method for all concerned, or, in the event of there being insufficient necessity for the permanent existence of such a board, a temporary one could be drawn from among the ranks of those disinterested members of the electrical profession making a specialty of works of this nature. The central station owners where they have not legally forfeited the right to expect leniency and consideration at the hands of the municipality should certainly have due regard shown their interests as far as can be consistently done, in view of the fact that at the time when the station was established, assuming this to have taken place not less than five years ago, comparatively much inferior and more inefficient methods and apparatus were taken advantage of as being the best then known. In those instances where during the profitable operation of the central station for a period of several years, the owners have shown culpable lack of enterprise in failing to improve the particular system where such would be necessary in order to assure the supplying of an increasingly efficient and up-to-date service at proportionately lower prices, the justice of compelling the municipality to repay to the owners their original outlay for the equipment, is open to serious question, particularly if that equipment be out of date, insufficient, and in a badly depreciated condition. And even though the owners be willing to accept a considerably reduced price for their equipment, the fact must be borne in mind that in order to place such on a modern and more efficient basis the only alternative left is that accepted by the wide-awake manager, namely, to discard the old and install more capacious and efficient machinery and to practically reconstruct the system. Where any part or portion of the old equipment can be advantageously continued in use as a part of the new system, a reasonable allowance should be made on such to the owners, and that part or portion adopted. The

tendency, however, seems to be in the majority of cases to ignore the owners as far as possible, and to purchase an entirely new outfit. Whether this policy be a judicious one depends altogether on the nature and quality of the local system to be supplanted, and will be discussed in a future article. It may be remarked just here, however, that a great deal of the machinery and apparatus installed a few years ago would be dear at any price if adopted in a modern central station, where the latest types and highest quality of equipment are necessary to meet the conditions under which the station should be operated. The enterprising manager, alive to his own interests, has already perceived the necessity of operating his equipment under the most economical methods, and that in order to do this the many needless and avoidable wastes of power in process of translating the energy of the coal pile into light and motive power due to poorly designed and inefficient devices must be stopped, as far as the latest developments of the science have shown to be practicable. In consequence of this the said devices have been disposed of to the dealer in second-hand apparatus, or sent to the scrap heap, and the more efficient apparatus installed. If, then, the practical manager finds it to his interests to get rid of his out-of-date machinery, is there any valid excuse for compelling the municipality to cover the losses incurred through the incompetent manager's failure, when it is found necessary or advisable to establish an improved system on its own account, and where in any event the old system would have to be replaced by a new one?

An article of much interest, bearing on up-to-date management of public lighting plants, appears in the editorial columns of the *Electrical Engineer* of May 26th, 1898, and is well worth reproduction, in view of the fact that this journal actively opposes municipal ownership. This article, entitled "An Object Lesson for Municipal Plant Advocates," says:—

"It is now about ten years ago that the then Mayor Grant of New York ordered the electric light poles of this city to be hacked down with axes and the wire carted to the city junk yard. This policy of violence was the first step toward the placing of the wires underground, and although no one would now go back to overhead wires, the method adopted for bringing about the result will always be considered arbitrary and uncalled for. In striking contrast with the ex-mayor's procedure is the painstaking and intelligent manner in which the officials of Providence, R.I., have gone about adjusting questions of this kind with the local lighting contractors, the Narraganset Electric Lighting Company. The latter company has an exclusive franchise for electric lighting in the city, but instead of abusing its privilege, has steadily increased its hold on the public confidence by its policy of fair dealing emphasized by a steady reduction in rates. Recently a committee of the city council was appointed to report upon the placing of high tension wires underground, and the committee's report now lies before us. Before formulating its report the committee undertook a trip of inspection of underground work in various cities, and that it was not a junket is evident from the fact that the committee traveled at its own expense. The proposition which it sanctions for adoption by the city council is substantially that submitted by the electric lighting company. This contract provides for the gradual removal within three years of all the overhead wires and their placing in underground conduits within what is termed the first building district of the city. At the same time the lighting company agrees to a gradual reduction of the price for lighting from 35 cents to 30 cents, to take effect in 1903, for 2,000