

## Editorial

### FREE LIME IN CEMENT.

For many years engineers continued in the habit of depending entirely upon the tensile tests of neat cement and 3:1 sands, and it was customary for them to ignore entirely the compression tests. It is now definitely known, however, that neat tests have become almost obsolete in European laboratories, the practice being for those interested to confine themselves entirely to the 3:1 sands in both compression and tension. But even these tests have been shown to be far from reliable, especially where fine-grain sands are used. In reinforced concrete work the concrete is rarely subjected to tension except in instances of accident in design, and it has been decided that the only use of neat tests is to determine the initial and final set of the cement, of which the initial set should be about one hour. Modern cement is much more finely ground than was at one time the case, and naturally great care should be given to the way in which cement for reinforced concrete work is stored. While previously, in the days of coarse grinding, it was necessary to give plenty of time for aeration in order to render it safe, as it contained a certain proportion of free lime, at the present time, if any of this is present, it is hydrated practically as soon as the concrete is made. If cement is stored in an exposed position it becomes greatly reduced in value, due to hydration, and the only safe method, where it is not required for immediate use, is to stock it in airtight bins. The most accurate test to ascertain the proportion of free lime in cement is still stated to be the "Chatelier," the testing instrument consisting of a section of a small cylindrical tube cut off at a given length, and with a saw cut along its axis. To this two arms are connected, of a given length as compared with its diameter. The cement is gauged with approximately 25 per cent. of water filled into the tube, and stored in cold water for twenty-four hours. After this it is placed in cold water, which is heated to the boiling point, and is then boiled as quickly as possible for six hours. Before this latter process the distance between the pointers is accurately measured, and after the boiling is over the difference in the distance between the arms will show the expansion that has taken place. This difference should not exceed 4 millimetres, and it is said that the concrete made with cement that has passed this test will be absolutely safe in use, and no accident can happen due to the presence of free lime.

### CO-OPERATION IN PUBLIC UTILITIES.

This is the time of year when the champions of municipal ownership advance their hobbies into the political arena, and make great endeavors to sway public interest to a general and favorable conclusion with respect to the abstract question. It is interesting to note that, at a large conference of United States mayors held recently in Philadelphia, although there were a number of outcroppings of radicalism, as might have been expected, the dominant opinion was in favor of the privately owned and operated utility, with proper regulation, either state or municipal. Of interest also were the remarks of Mr. A. M. Taylor, director of city transit, Philadelphia, in outlining the city's policy in dealing with public utilities.

"We recognize," said Mr. Taylor, "the great part which the railroads and other public service corporations can take in the development of this city and its industries, but to so take this part they must have credit upon which to raise large sums of money, and they must be assured of an adequate and attractive return thereon and immunity from unwarranted competition or political and public attacks. The capitalists of this country are going to invest their money in communities where capital is justly treated and permitted to earn attractive returns and are not going to invest money in communities where its security is impaired and its productiveness is unduly curtailed by unreasonable legislation, regulation or competition."

One decided advantage of the exercising of the "municipal ownership" hobby at election time lies in the tendency it has to convert antagonistic relationship between public service companies and the public into a relationship of mutual understanding. In the case of street railways, for instance, it should be the purpose of both railway and officials and responsible public officials to place the relations of the companies and the public upon a permanent basis of mutual confidence. It is necessary that the companies and the public understand and trust each other, otherwise the companies will not prosper, the service will be poor, and the public will suffer.

At the winter meeting of the Pennsylvania Street Railway Association the relation between electric railways and the public was discussed by Emory R. Johnson, Professor of Transportation and Commerce, University of Pennsylvania. Prof. Johnson, who is also a member of the noted Public Service Commission of that city, makes the following statements:—

Electric railway and other public service companies can secure the confidence of the public, provided the companies adhere to methods of financing and management that square with approved moral standards; provided the companies keep the public fully and accurately informed regarding the affairs of the corporations that serve the public; and provided the service rendered is adequate and efficient.

The affairs of public service companies must be matters of public knowledge, and it will be impossible for a company successfully to conceal operations that would not meet with public approval. Electric railway and other public service companies should keep accurate accounts according to uniform methods, and their financial obligations should be so straightforward that the public will be convinced that the companies are not resorting to the speculative methods of financing which, though prevalent in the past, have now come to be condemned; also the companies should systematically publish information that will help the public to understand and correctly judge the financial and service operations of the companies.

Good service is fundamental and all important. It is essential to the success of the company and is necessary to secure public approval of what the company does. If the public feels that utility companies are straightforward in their financial management and are rendering good services, it will not be opposed to the maintenance of charges that yield adequate profits. The public demand for good service is stronger than for low fares.