

is testing done already by municipalities. Since cement and asphalt came into use, the means of testing the quality of shipments of these materials is a necessity for every municipal engineer. It is only necessary to extend operations so as to meet the needs of the department of buildings. To the machinery already in use for applying tensile tests it would be necessary to add only machinery for compression. Arrangements for the application of heat or cold are easily made or extended.

It would not involve much work to test all new material. But another class of testing is suggested which is really another question. The anxiety that surrounds the use of cement would dissolve before certainty that it had been all tested. This seems too great an undertaking to be assured. But it is not so impossible as it seems. One output of a cement mill does not vary much in quality and it amounts to many car-loads. One test per carload is therefore sufficient. And it is conceivable that all the carloads that enter a city might receive the municipal test at a charge to the dealers in cement which would add inappreciably to the cost of cement to the consumer.

To Control the Effect of High Building.

A tall building is a pleasant abode when its windows look out freely to the sun and air; it is not so pleasant nor so wholesome as an abode when its windows look into a tall well. There is still another stage, when windows which once looked out on the sun and air are blocked by the contact of another tall building that has risen on the adjoining lot and all offices on this side must be lighted by artificial light and get their air from the passages. This is looking at the question from within. Viewed from without, tall buildings at intervals make a picturesque street and one that is not unsanitary; rather, one would say, the varied heights and fields of surface must vary in temperature so as to increase the movement of air. And the sun is not excluded from the streets to an injurious extent. But, when these buildings become continuous, the streets are transformed into narrow clefts which it cannot be good to live in. From all points of view then it is desirable to keep tall buildings apart; to have them rising like towers at intervals along the street. All interests would be served by this; the streets would look fine and would be habitable, and the buildings themselves would afford the greatest satisfaction to their occupants and the greatest value to their owners.

The question is how this desirable condition is to be reached. Obviously permission and restriction, as regards building high, cannot be dealt out alternately to owners of property along the street. The only way, and this is quite possible and quite reasonable, is to require that companies, proposing to erect buildings above a certain height, shall acquire enough land on either side to provide for the proper clearance of their upper storeys. Tall building therefore would always have the form of an inverted **T**. The top of the horizontal member would combine the functions of cornice line for the street and crowning member for the base of the tall portion of the building. The street composition, which in its abstract form may be represented thus **||||**, has an illustration in the concrete in the lower part of Broadway, New York, where

the accidental collocation of a couple of tall shafts with a three-storey bank between (its cornice running with their base cornices) shows how fine, and how consistent with a Parisian nicety of street design, such a system of building would be. Its justification on this ground alone might not obtain an easy recognition in Canada, but the practical advantages to both building owners and the public are of a material kind and are obvious.

The collapse of floors in the **Danger in Alterations.** Meyers department store, at Albany, is an instance of a kind of accident that has happened before. The only wonder is that it does not happen oftener. According to the newspaper accounts a gang of Italian workmen were removing an iron column under the ground floor. They had propped up the floor, but evidently the means of support were insufficient, for, as soon as they loosened the column, down came all three or four floors over an area "fifty feet in radius", (the newspapers say), in the centre of the building. The accounts survivors give of how they noticed things slide off the counters, as the floors began to cave, is graphic and horrifying. Attendants slid down in the same manner into the gulph. The actual extent of the disaster, as regards loss of life, was not apparent until the ruins were cleared away, and this process seems to have outlasted the interest of our newspapers. The indications were, however, that the loss of life would be unexpectedly small. For one thing the accident happened immediately after the day's work began. But it might have been otherwise, and may be otherwise on some other occasion when alterations are being carried on in an occupied building. If in this case the work was being done with proper precaution, as one would think likely in a building of so much importance, the result only emphasizes the difficulty of keeping clear of danger in altering existing work. Yet in this field the "practical man" is paramount, and often shows his practicalness by the way he is able to run close to the margin of safety without harm. Once in a way an accident happens, but not always while the work is in progress. Some time afterwards, perhaps years afterwards, there is a collapse, and investigation shows that there has been too much cutting, too wide trimming, too long a span—some condition of affairs that at first hand, when the building was in process of construction, would not be thought of for a moment. When the building has stood for some time, its coherence, which experience shows is actually the greater for the setting and settling together of its parts, seems much more difficult to upset. Then the man with a saw in his hand, that one sees performing internal operations on floors, has a confidence in the mutual support of the parts of a structure which, however remarkably it is justified in experience, does not make for the safety of the public. He may at any time meet the special case which requires a special analysis if it is to be handled with safety; and the habit of mind that is likely to give this analysis is not his habit of mind, that of the practical man whose readiness to do is based on assurance, so much as that of the scientific man whose only certainty being demonstration always starts from the point of doubt. It is this latter kind of workman—the architect or engineer—who should be in charge of structural alterations in most buildings and certainly in occupied buildings.