

and consequently it is only a matter of time until the beam is unsafe. The paint destroys the bond between the steel and concrete and is worse than useless.

As to the permanency of reinforced concrete, it may be said that it will last forever. If conscientious work is done there is no reason why the structure should not last an indefinite period; of this we feel certain, from observations on floors in certain buildings which have been pulled down to make room for larger. In every case the reinforcement has been found bright and clean after many years in the building.

#### EFFLORESCENCE.

It sometimes happens that a white powder called efflorescence, appears on concrete work. This gives a very unsightly appearance

A wash which has been used to get rid of efflorescence is composed of one part hydrochloric acid and 5 parts water. Apply with scrubbing brushes and wash off with clean water.

#### INSPECTION OF CONCRETE WORK.

It is the rule nowadays to appoint an inspector on any engineering undertaking to look after the interests of the owner and see that specifications are lived up to. A good inspector can do much to keep everything working smoothly, but he need never be idle. Concrete work will stand an endless amount of inspection. The mix must be closely watched, to see that gauging is properly done. The beam sizes must be checked as also the reinforcement. The inspector must see that all columns are true and plumb, beams not shifted or forced. He must see that sufficient fireproofing is allowed, and must check column sizes. In fact, it is absolutely essential to have thorough inspection to obtain best results.

#### CULVERTS.

Reinforced concrete culverts are now quite common and every railway has its own standard sizes for branch and main line work. When properly constructed the reinforced concrete culvert should last forever. Usually they are built for plain concrete work and then reinforced for luck. On the other hand some people have supposed that reinforced concrete would do the impossible and their work has been made too slim, only to fail.

A favorite reinforcement with railways is the ordinary T-rail. This makes a splendid reinforcement, many designers using this entirely.