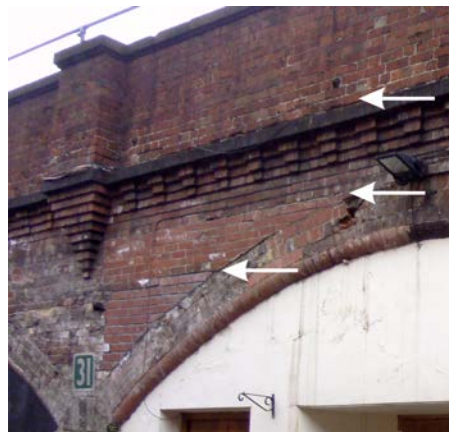


## EVENING LECTURE

***When the facts change, an Engineer must update understanding***

***Professor Bill Harvey***



*I began working on masonry bridges in 1981. By 1984 I had the first edition of Archie out in the market and was being pressed for ideas about viaduct analysis. I can remember sitting on a train near Sheffield reading New Scientist and seeing Occam's Razor expressed for the first time "It is vain to use more arguments than necessary". That's an old use of the word vain and I then stretched the expression into a use far from philosophy. An arch (not an arch bridge) fails by forming 4 hinges and thus a mechanism. The hinges develop sequentially so it goes through a statically determinate three hinge form before failure and that might tell us more. And that took me to a two span, six hinge, statically determinate model for a viaduct.*

*In 2001 I began to hear of trouble on viaducts. In 2006, I saw horizontal cracks in the spandrel walls myself for the first time, but they weren't moving as people told me and I couldn't understand. Clearly the bridges suffered damage at loads much lower than I was predicting. The facts were changed so I needed to change my view but that needs new ideas and they were slow coming. There is much to consider and the eventual solution (for how long?) was very surprising.*

*The story is worth telling and reflects on every aspect of structural engineering. The construction of these old bridges prevented them from behaving in the expected way.*

**6.30pm, Tuesday 11<sup>th</sup> September  
DIT, Bolton Street**

**Tea and Coffee from 6pm**

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