

## SCIENCE IN CHELTENHAM

In January, 2015 I had an email from a member of the clergy in the Gloucester Diocese asking if the bell ringers at the Minster would be interested in taking part in the Science Festival. Of course I said yes, though I hadn't the slightest idea what it entailed. The subject was to be the science of bell ringing

In March we were told the date would be 3<sup>rd</sup> June at 6.30. We said we would ring a quarter peal beforehand and could provide hand bells if needed plus people to ring them. It was also agreed that we could put up our Branch banners and leaflets about our recently launched appeal to replace the bells with 13 new ones.

On the afternoon of 3<sup>rd</sup> June three of us arrived early and met the organisers from the festival and agreed where we should sit and to do as we were told when the time came. We successfully completed our quarter peal and three of us joined the 91 people (including a dozen ringers) who had purchased tickets for the event.

The first half hour was a talk by George Dawson of the Bell Museum at Taylor's Bell Foundry about the history and science of making bells. He had brought some bells with him and we heard the difference between the different metals that can be used to make bells.

The second talk was by Dr Rob Surman, a mathematician from Leeds University. He is not a ringer but has always been fascinated by the theory behind bell ringing methods. He told us that bell ringers had discovered group theory over 150 years before mathematicians had! He put on the screen an illustration of the extent on three bells and asked us to demonstrate it using hand bells. Reg and Isabel Hitchings and I held a hand bell each and swapped pairs over by stepping round each other as instructed. He then described the first eight changes of the same thing on four bells, and George helped us to illustrate that whilst holding a piece of paper with our number on it.

I got a bit lost with the rest of the theory- my O Level maths wasn't up to it. But the descriptions of combinatorics, a triangle with dotted lines across it to show symmetry, rules of what an extent is, permutations and even and odd subgroups was very entertaining.

The event was a great success and I am very glad that we agreed to do this. Now more than 90 people understand a little more about bell ringing.

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