## PEAL ANALYSIS

As at 2 JUNE 2022 the bells, a 1928 Taylor recast of an earlier twelve, have had 214 peals rung on them. Together with 6 peals rung on the previous bells, a total of 220 have been rung in the tower. They are the eighth heaviest ring ${ }^{1}$ measured by tenor weight but the fifth heaviest in terms of the total weight of 10.5 tons. They are challenging to ring well because of tower movement and some frame movement though their magnificent sound is usually considered more than sufficient compensation for the effort involved.

Along with the ring of twelve there are four semitone bells - combinations of these give five ${ }^{2}$ distinct rings - the Twelve (and its subsets the Back Ten and the Back Eight), the Harmonic Minor Ten, the Clare Ten (and its subset the C\# Eight), the Middle Eight and the Front Eight.

The first peal on the modern twelve was in 1928. The $6^{b}$ was first pealed in 1960, the 5" and 9\# in 1961 and the $2^{\#}$ in 2018.

The previous twelve, with a 50 cwt tenor, were cast by Taylors in 1869 to Grimthorpe's ${ }^{3}$ specification, and at the time the third heaviest of the 24 rings of twelve then existing. But in the nearly 60 years of their life they were pealed only six times of which just one was a twelve-bell peal. The general opinion seems to have been that the trebles were poor bells and the back ten were a much better ring. By 1875 there were also three semitone bells ${ }^{4}$ but they were never rung to peals and may never have been rung at all.

Before 1870 the cathedral tower contained a one-ton octave dating back to 1611 but they were never pealed. Five of these bells are now in the cloisters.

[^0]
## LEADING RINGERS - TOP 20

Over 600 people have rung a peal here, with members of this group having rung 17 or more -

|  |  | 1 | $\begin{aligned} & 2 \\ & \# \end{aligned}$ | 2 | 3 | 4 | 5\# | 5 | 6 | $\begin{aligned} & 6 \\ & b \end{aligned}$ | 7 | 8 | 9 $\#$ | 9 | 0 | E | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mark Regan | 127 | 21 | 1 | 5 | 8 | 4 | 6 | 3 | 3 | 3 | 4 | 14 | 1 | 3 | 11 | 16 | 24 |
| Bernard Taylor | 94 | 9 | 1 | 7 | 6 | 7 | 4 | 9 | 11 | 4 | 11 | 12 | 1 | 7 | 2 | 2 | 1 |
| Jim Clatworthy | 84 | 7 | -- | 10 | 16 | 9 | 5 | 10 | 10 | 5 | 8 | 4 | -- | -- | -- | -- | -- |
| Ashley Fortey | 83 | 1 | 1 | 8 | 4 | 2 | 2 | 1 | 1 | 2 | 3 | 5 | 1 | 11 | 25 | 9 | 7 |
| Chris Pickford | 65 | -- | -- | -- | -- | 3 | -- | -- | -- | -- | 2 | 2 | 2 | 14 | 14 | 21 | 7 |
| Dan Jones | 58 | 1 | -- | 1 | 2 | 1 | 2 | 1 | 4 | 1 | 8 | 11 | 1 | 12 | 7 | 5 | 1 |
| Nick Brown | 45 | 1 | -- | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 4 | 4 | 17 | 2 |
| David Jenkins | 45 | 2 | 1 | 5 | 7 | 3 | 3 | 2 | 3 | 4 | 3 | 5 | 1 | 2 | 1 | 2 | 1 |
| Chris Kippin | 40 | 3 | -- | 5 | 3 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 4 | 6 | 5 | 3 |
| C P Homewood | 40 | 1 | -- | 4 | 3 | 6 | 1 | 2 | 3 | 1 | 5 | 9 | 1 | 2 | 1 | 1 | -- |
| Darran Ricks | 38 | 2 | 1 | 4 | 2 | 2 | 2 | 2 | 6 | 1 | 10 | 1 | 1 | 1 | 1 | 1 | 1 |
| Alex Byrne | 33 | 2 | 1 | 3 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | 5 | 1 | 4 | 2 | 2 | 2 |
| Swaz Apter | 28 | 4 | -- | 11 | 4 | 2 | 4 | 1 | 1 | 1 | -- | -- | -- | -- | -- | -- | -- |
| Mike Clements | 25 | 1 | -- | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 3 | 3 | 1 | 1 |
| Alison Regan | 25 | 1 | -- | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 1 | 3 | 3 | 2 | 1 |
| Gordon Birks | 24 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4 | -- | 1 | 9 | 8 | 2 |
| Rick Shallcross | 22 | -- | -- | -- | -- | -- | -- | -- | 1 | -- | 3 | 3 | -- | 1 | 4 | 6 | 4 |
| Tom Childs | 20 | -- | -- | 1 | 3 | 1 | -- | 3 | 2 | -- | 1 | 2 | -- | 1 | 3 | 1 | 2 |
| Robin Hall | 20 | 1 | -- | -- | 1 | -- | -- | 2 | 2 | -- | 1 | 5 | -- | 5 | 1 | 1 | 1 |
| Alan Flood | 17 | 2 | -- | 3 | 3 | 2 | -- | 1 | -- | -- | 4 | 2 | -- | -- | -- | -- | -- |

Those in green have rung all 16 bells to a peal.
Those in brown 'circled' the 15 bells prior to the addition of the $2 \#$.

## LEADING RINGERS - TOP SEVEN

It is rare for all the leading ringers to be in the same peal so on 18 Feb 2017 when this situation occurred by chance with the top seven, a photo was lined up. This picture was put on Facebook in Feb 2018 and dubbed the 'Magnificent Seven' by Ashley Fortey.

$L$ to $R$ with peals rung at Worcester as at 18 Feb 2017-
Dan Jones (32), Nick Brown (38), Chris Pickford (46), Ashley Fortey (48), Jim Clatworthy (58), Bernard Taylor (64), Mark Regan (87)

The equivalent picture today would have Dan Jones moving to the right by one position, and need to include David Jenkins who is equal seventh with Nick Brown. The top five are in the same order, though their totals are rather larger!

The current top eight have never all been in the same peal. A peal with the top twelve (who have each rung 30+ peals here) could be arranged, no doubt to be labelled 'The Dirty Dozen'.

## 'CIRCLING' THE TOWER

Ringing all the possible bells to a peal, or 'circling' the tower, is a relatively new phenomenon at Worcester because of the rarity of peal attempts premillennium. So the achievement of Tom Lewis, back in 1974, of ringing all the twelve bells to a peal was impressive, particularly as he took only 15 peals to do so, which was his final total. Only 6 of these were 12 -bell peals and he did not ring any of the three existing semitone bells (5\#, 6b and 9\#).

Eight people completed the circle of the fifteen bells, prior to the latest augmentation, the first being Bernard Taylor in 2007 within the space of 19 peals. He was followed by Mark Regan in 2008 (28 peals), Alison Regan in 2009 (21 peals), David Jenkins in 2013 ( 21 peals), Ashley Fortey in 2014 (32 peals), Mike Clements in 2015 (22 peals), Nick Brown in 2015 (22 peals) and Chris Kippin in 2017 (31 peals).

With the addition of the Sharp Second in 2018 six people have completed the new 'circle' of all sixteen bells. The first to do so was Bernard Taylor in 2018 followed by Mark Regan, David Jenkins, Ashley Fortey, Darran Ricks and Alex Byrne. Waiting to ring this bell are Mike Clements, Nick Brown, Chris Kippin \& Dan Jones.

Perhaps a 'purer' definition of 'circling the tower' would be to ring each bell to peals on the relevant number, so 12-bell peals on the Twelve, 10-bell peals on the Minor Ten, 8-bell peals on the Front Eight, \&c. For the five distinct rings - the Twelve, Harmonic Minor Ten, Clare Ten, Middle Eight and Front Eight it would take a minimum of 48 peals to achieve this.

For 12-bell peals on the Twelve just 7 ringers have completed this 'circling', namely Mark Regan, Bernard Taylor, Chris Kippin, Nick Brown, Mike Clements, Alex Byrne and David Jenkins. Ashley Fortey, Dan Jones and Robin Hall each have two bells left to achieve this.

For Minor 10-bell peals on the Harmonic Minor Ten, Bernard Taylor, Ashley Fortey and Mark Regan have rung each bell. It will certainly be sometime before anyone achieves this for any other of the rings.

## The TWELVE

## Cinques \& Maximus

Stedman Cinques was the only twelve-bell peal on the old bells - 2 Jun 1914 and also the first one on the new bells-26 Dec 1928. The first Maximus was the following year when Bill Pye rang the tenor. Not until 1962 was the tenor 'turned-in' again, its fearsome reputation having been the result of loose headstock bolts. The most recent peal was on 18 Apr 2022.

| CINQUES | $\mathbf{7 5}$ | MAXIMUS | $\mathbf{6 8}$ |  |
| :--- | ---: | ---: | :--- | :--- |
| Stedman | 67 | Cambridge | 47 |  |
| Other | 8 | Other | 21 |  |
| Fastest |  |  |  |  |
| CINQUES | Average | Slowest |  |  |
| MAXIMUS | 3h 49m | 3h 54m | 4h 12 m |  |

The 17 people who have rung 14 or more twelve-bell peals are listed below.

| Twelve |  | $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9}$ | $\mathbf{0}$ | E | $\mathbf{T}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mark Regan | $\mathbf{7 4}$ | $\mathbf{2 0}$ | $\mathbf{2}$ | 6 | 1 | 2 | 2 | 2 | 3 | 2 | 4 | 7 | $\mathbf{2 3}$ |
| Bernard Taylor | $\mathbf{5 4}$ | 9 | 3 | 4 | 3 | 9 | 9 | 3 | 5 | 6 | 1 | 1 | 1 |
| Jim Clatworthy | $\mathbf{5 2}$ | 6 | 7 | 9 | 7 | 8 | 9 | 4 | 2 | - | - | - | - |
| Ashley Fortey | $\mathbf{4 4}$ | 1 | 6 | 3 | 1 | 1 | 1 | - | - | 3 | 17 | 5 | 6 |
| Chris Pickford | $\mathbf{3 8}$ | - | - | - | - | - | - | 1 | 1 | 9 | 8 | 12 | 7 |
| Chris Kippin | $\mathbf{3 1}$ | 3 | 5 | 3 | 1 | 1 | 2 | 2 | 1 | 3 | 4 | 3 | 3 |
| Nick Brown | $\mathbf{2 9}$ | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 3 | 3 | 1 | 12 | 2 |
| Dan Jones | $\mathbf{2 7}$ | 1 | 1 | - | 1 | 1 | - | 4 | 5 | 7 | 3 | 3 | 1 |
| David Jenkins | $\mathbf{2 6}$ | 2 | 4 | 5 | 1 | 2 | 2 | 1 | 4 | 2 | 1 | 1 | 1 |
| C Homewood | $\mathbf{2 4}$ | 1 | 3 | 1 | 3 | 1 | 2 | 4 | 7 | 2 | - | - | - |
| Swaz Apter | $\mathbf{2 0}$ | 4 | 10 | 3 | 1 | 1 | 1 | - | - | - | - | - | - |
| Alex Byrne | $\mathbf{2 0}$ | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 3 | 1 | 2 | 2 |
| Mike Clements | $\mathbf{1 8}$ | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 3 | 3 | 1 | 1 |
| Rick Shallcross | $\mathbf{1 7}$ | - | - | - | - | - | - | 2 | 2 | 1 | 3 | 5 | 4 |
| Darran Ricks | $\mathbf{1 7}$ | 2 | 3 | 2 | 1 | 2 | 5 | 2 | - | - | - | - | 1 |
| Robin Hall | $\mathbf{1 5}$ | 1 | - | 1 | - | 2 | 2 | 1 | 4 | 1 | 1 | 1 | 1 |
| Alison Regan | $\mathbf{1 4}$ | 1 | 1 | 1 | - | 1 | 1 | - | 2 | 2 | 2 | 2 | 1 |

This table corresponds to the 'circled tower' feature of Pealbase.co.uk - select ringer's list of towers, select number rung there - it only 'counts' 12-bell peals for this analysis.

## The THREE TENS

|  | F\# | E | D\# | C\# | B | A\# | G\# | F\# | E | D\# | C\# | B |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Back 10 | - | - | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | E | T |
| Minor 10 | - | 2 | 3 | 4 | $5 \#$ | $6 b$ | 7 | 8 | 9 | 0 | E | - |
| Clare 10 | - | $2 \#$ | 3 | 4 | $5 \#$ | 6 | 7 | 8 | $9 \#$ | 0 | E | - |

## THE BACK TEN (48-02 in B)

Five of these were on the old bells, the first on 14 Dec 1893. All of them were rung significantly quicker, by about $1 / 4$ hour, than those on the current bells, the average being 3h31m with the first two taking only $31 / 4$ hours. Two of the five peals had two men on the tenor.

The other 5 on the new bells, the first of which was 26 Dec 1935, have averaged 3 h 42 m with the most recent being 20 Feb 1960. Oddly, three of these peals had two men on the tenor.

The current back ten have always had a reputation for being more difficult to ring than the twelve, whereas for the old bells it was the other way round. It would be good to score one peal of Royal on the current bells just to make this table worthwhile........

| CATERS | $\mathbf{9}$ | ROYAL | $\mathbf{1}$ |
| :--- | ---: | :--- | ---: |
| Grandsire | 8 | Plain Bob | 1 |
| Stedman | 1 |  |  |

The leading ringers have been -

| Back Ten |  | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9}$ | $\mathbf{0}$ | E | $\mathbf{T}$ |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| William Johnson | $\mathbf{5}$ | - | - | - | 1 | - | 2 | - | - | - | 2 |
| William Lewis | $\mathbf{5}$ | - | - | - | - | 3 | 1 | 1 | - | - | - |
| George Hinton | $\mathbf{4}$ | 1 | 3 | - | - | - | - | - | - | - | - |
| William Powell | $\mathbf{4}$ | 1 | - | 3 | - | - | - | - | - | - | - |

This melodic, haunting ring ${ }^{5}$ makes Worcester unique ${ }^{6}$. One of the challenges of ringing them has been the odd rope circle with 5 \# out of position ${ }^{7}$.

For many years they were only rung for a short period on Remembrance Day so the first peal on them, $\mathbf{3 1}$ Dec 2003 was 75 years after the bells were installed. The most recent was on 15 Apr 2022. All but one of the peals have been rung half-muffled. There are usually peal attempts for Good Friday, Remembrance Sunday and New Year's Eve each year, which makes them the most rung of the various semitone rings at the Cathedral.

| CATERS | $\mathbf{3 0}$ | ROYAL | $\mathbf{7}$ |  |
| :--- | ---: | ---: | :--- | :--- |
| Grandsire | 24 | Cambridge | 3 |  |
| Stedman | 6 | Other | 4 |  |
|  |  |  |  |  |
| CATERS | Fastest | Average | Slowest |  |
| ROYAL | 3 h 28 m | 3h 32m | 3 h 49 m |  |

The average speed equates to 3.9 minutes per course for Grandsire Caters, or 4.6 minutes per course for Stedman Caters.

The leading ringers for peals on the Harmonic Minor Ten are -

| Minor Ten |  | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5 \#}$ | $\mathbf{6 b}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9}$ | $\mathbf{0}$ | E |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mark Regan | $\mathbf{3 3}$ | $\mathbf{2}$ | $\mathbf{1}$ | $\mathbf{1}$ | $\mathbf{4}$ | 3 | $\mathbf{1}$ | $\mathbf{9}$ | $\mathbf{1}$ | 3 | 8 |
| Ashley Fortey | $\mathbf{2 3}$ | $\mathbf{2}$ | 1 | 1 | 2 | 1 | 1 | 2 | $\mathbf{7}$ | 5 | 1 |
| Bernard Taylor | $\mathbf{2 1}$ | $\mathbf{4}$ | 1 | 1 | 2 | 3 | 4 | 3 | 1 | 1 | 1 |
| James Clatworthy | $\mathbf{1 8}$ | $\mathbf{2}$ | $\mathbf{4}$ | - | 5 | 5 | 1 | 1 | - | - | - |
| Dan Jones | $\mathbf{1 8}$ | - | $\mathbf{2}$ | - | 1 | 1 | 3 | 2 | 5 | 2 | 1 |
| Chris Pickford | $\mathbf{1 5}$ | - | - | - | - | - | - | - | 3 | 6 | 6 |
| Darran Ricks | $\mathbf{1 3}$ | 1 | - | - | 1 | 1 | 7 | 1 | 1 | 1 | - |
| Craig Homewood | $\mathbf{1 1}$ | 1 | $\mathbf{2}$ | $\mathbf{2}$ | 1 | 1 | - | 2 | - | 1 | 1 |
| Nick Brown | $\mathbf{1 0}$ | 1 | 1 | 1 | - | - | 1 | - | 1 | 1 | 4 |
| Tom Childs | $\mathbf{9}$ | 1 | $\mathbf{2}$ | 1 | - | - | 1 | - | 1 | 2 | 1 |

[^1]The 2018 addition of a Sharp Second Bell means that the cathedral has a new major key version of the Harmonic Minor Ten using 2\#, 6, 9\# instead of 2, 6b and 9. This is almost unique ${ }^{8}$ to Worcester, as the most common way ${ }^{9}$ of obtaining a major ten is to add a 'top treble' and 6b, making the $9^{\text {th }}$ the tenor. As the new bell is dedicated to St Clare ${ }^{10}$ this middle ten is known as the 'Clare Ten'. For the first peal the rope circle was quite awkward but the changes made to the 5\# and 9\# mean it is now quite normal.

This ten were first pealed 1 Dec 2018 and most recently 29 May 2022.

| CATERS | $\mathbf{2}$ | ROYAL | $\mathbf{1}$ |
| :--- | ---: | :--- | ---: |
| Grandsire | 1 | London No.3 | 1 |
| Stedman | 1 |  |  |

The peal times for these were $3 \mathrm{~h} 41 \mathrm{~m}, 3 \mathrm{~h} 44 \mathrm{~m} \& 3 \mathrm{~h} 38 \mathrm{~m}$. This is not much data but it does suggest that people want to ring this ten slower than the Harmonic Minor Ten even though they are almost the same ring. The three different bells (2\#, $6^{\text {th }} \& 9 \#$ ) actually make this ring $33 / 4 \mathrm{cwt}(190 \mathrm{~kg}$ ) lighter, but the fact that the Harmonic Minor Ten are always rung half-muffled may be the most important distinction between the two tens.

Currently there are 5 leading ringers, as three is enough to be on this list!

| Clare Ten |  | $\mathbf{2 \#}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5 \#}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9 \#}$ | $\mathbf{0}$ | $\mathbf{E}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bernard Taylor | $\mathbf{3}$ | 1 | - | 1 | 1 | - | - | - | - | - | - |
| Dan Jones | $\mathbf{3}$ | - | - | - | - | 1 | - | 1 | - | 1 | - |
| Alex Byrne | $\mathbf{3}$ | 1 | - | - | - | 1 | - | - | 1 | - | - |
| Ashley Fortey | $\mathbf{3}$ | - | - | - | - | - | - | - | - | 2 | 1 |
| Darran Ricks | $\mathbf{3}$ | 1 | - | - | 1 | - | - | - | - | - | 1 |

[^2]
## The FOUR Octaves

|  | F\# | E | D\# | C\# | B | A\# | G\# | F\# | E | D\# | C\# | B |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Back 8 | - | - | - | - | 5 | 6 | 7 | 8 | 9 | 0 | E | T |
| C\#8 | - | - | - | 4 | $5 \#$ | 6 | 7 | 8 | $9 \#$ | 0 | E | - |
| Middle 8 | - | 2 | 3 | 4 | 5 | $6 b$ | 7 | 8 | 9 | - | - | - |
| Front 8 | 1 | $2 \#$ | 3 | 4 | 5 | 6 | 7 | 8 | - | - | - | - |

## THE BACK EIGHT (48-0-2 in B)

2 peals
These are heavier (and tonally much better) than Sherborne Abbey ${ }^{11}$ and have been pealed just twice, on 15 Aug 2009 and 5 Oct 2019. Despite their weight they 'fit' together much better as a ring than any of the other octaves and deserve to be rung a bit more often. However the challenge of doing so should not be underestimated and is beyond many bands.

| TRIPLES | $\mathbf{1}$ | MAJOR | $\mathbf{1}$ |
| :--- | ---: | :--- | :--- |
| Stedman | 1 | 23-Spliced Surprise atw | 1 |


| Back 8 |  | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ashley Fortey | $\mathbf{2}$ | - | - | 1 | - | - | - | - | 1 |
| Bernard Taylor | $\mathbf{2}$ | - | - | 1 | 1 | - | - | - | - |
| Mark Regan | $\mathbf{2}$ | - | - | - | - | - | 1 | - | 1 |

[^3]Worcester is unique ${ }^{12}$ among twelve-bell towers in having a major octave with its $11^{\text {th }}$ as the tenor. They were pealed first on 10 Jun 1961, and had an even more challenging rope circle than the Minor Ten until the 9\# roping was moved in 2018 and the 5\# in 2020. Arguably they are harder to ring well than the back eight because they do not quite 'fit' together - recent work has made them somewhat easier, with the 9\# in particular having a more appropriate swing time. However they do sound magnificent, which may be why more peals have been rung on them than on the lighter Middle Eight.

With the 2018 addition of the $2 \#$ and the use of the $3^{\text {rd }}$ these have become a ten - an unusual example of an augmentation within a ring - so it is likely that they will be less rung as an octave in future. Last pealed 29 Feb 2020.

| TRIPLES | $\mathbf{4}$ | MAJOR | $\mathbf{7}$ |
| :--- | ---: | :--- | :--- |
| Stedman | 2 | Cambridge | 4 |
| Grandsire | 2 | London | 2 |
|  |  | Spliced Surprise (23m atw) | 1 |
|  |  | Plain Bob | 1 |


| C\# octave |  | $\mathbf{4}$ | $\mathbf{5 \#}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9 \#}$ | $\mathbf{0}$ | E |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mark Regan | $\mathbf{1 0}$ | $\mathbf{2}$ | 2 | - | - | 1 | 1 | 3 | 1 |
| Bernard Taylor | $\mathbf{7}$ | 1 | 1 | 2 | 1 | 1 | 1 | - | - |
| Ashley Fortey | $\mathbf{7}$ | - | - | - | 1 | 2 | 1 | 1 | 2 |
| Chris Pickford | $\mathbf{7}$ | 3 | - | - | - | - | 1 | 1 | $\mathbf{2}$ |
| James Clatworthy | $\mathbf{6}$ | 1 | - | 1 | 3 | 1 | - | - | - |
| Dan Jones | $\mathbf{5}$ | - | - | 1 | - | $\mathbf{2}$ | 1 | 1 | - |
| Nick Brown | $\mathbf{4}$ | - | 1 | - | - | - | 1 | $\mathbf{2}$ | - |

[^4]This is the standard light octave within 50+ twelve-bell rings, but curiously at Worcester they were not pealed for over thirty years after installation, the first one being on 7 May 1960. This was the first time that any of the semitone ${ }^{13}$ bells, in either the old ring or the new one, had been rung to a peal.

The octave has not been particularly popular, perhaps because it was not a comfortable ring - the recent work on the bells has helped but they are still rather awkward. Having an alternative in the new Front Eight is likely to make them even less used. The most recent peal was 15 Jan 2022.

| TRIPLES | $\mathbf{5}$ | MAJOR | $\mathbf{5}$ |
| :--- | ---: | :--- | :--- |
| Stedman | 1 | Cambridge | 2 |
| Grandsire | $\mathbf{4}$ | Other | 2 |
|  |  | Spliced Surprise (23m atw) | 1 |


| Middle 8 |  | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6 b}$ | $\mathbf{7}$ | $\mathbf{8}$ | 9 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| David Beacham | $\mathbf{4}$ | - | - | - | - | - | 3 | 1 | - |
| Bernard Taylor | $\mathbf{4}$ | - | - | 1 | - | 1 | 1 | 1 | - |
| Tom Lewis | $\mathbf{3}$ | 1 | - | 1 | - | - | - | - | 1 |
| John Nicklin | $\mathbf{3}$ | - | - | - | - | - | - | - | 3 |
| Mark Regan | $\mathbf{3}$ | 1 | - | - | - | - | 1 | 1 | - |
| John Stanier | $\mathbf{3}$ | 2 | - | - | - | - | - | - | 1 |

[^5]The installation of the new Sharp Second ${ }^{14}$ to make the Clare Ten had the bonus effect of providing a front eight. These are a bright, sparkling ring and were pealed for the first time on 20 Jan 2019 and most recently 22 Dec 2019. It will be interesting to see if they become more popular than the Middle Eight over the next decade. As is normal for such an octave at the front end of a heavy twelve the peal times are rather slower (average 3h15m) than the tenor weight would lead one to expect.

| TRIPLES | $\mathbf{0}$ | MAJOR | $\mathbf{3}$ |
| :--- | ---: | :--- | :--- |
| ---- | -- | Spliced Surprise (23 atw) | 1 |
|  |  | Bristol | 2 |


| Front 8 |  | $\mathbf{1}$ | $\mathbf{2 \#}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jim Clatworthy | $\mathbf{3}$ | 1 | - | 2 | - | - | - | - | - |
| Mark Regan | $\mathbf{3}$ | 1 | 1 | - | - | 1 | - | - | - |
| Bernard Taylor | $\mathbf{3}$ | - | - | 1 | - | - | - | 1 | 1 |
| David Jenkins | $\mathbf{3}$ | - | 1 | - | 1 | - | 1 | - | - |
| Daniel Jones | $\mathbf{3}$ | - | - | - | - | - | 2 | 1 | - |

[^6]
## The Rings of Six

No six-bell peals have been rung at the cathedral though one was organized in 2010 but not started. Diatonic rings with five different tenors are possible -2\#-3-4-5\#-6-7 (front six of the middle ten)

3-4-5-6-7-8 (back six of front eight and the front six of back ten)
4-5-6b-7-8-9 (back six of middle eight)
6-7-8-9\#-0-E (back six of middle ten)
7-8-9-0-E-T (back six)
Two pentatonic sixes (1-2-3-6-8-0 of a major ten) also exist $2 \#-3-4-7-9 \#-E$ and $3-4-5-8-0-T$

## Rings of Five

Occasionally there is (pub) talk of a peal on the front five, as the obvious lightest choice for a major key (tenor 8-2-19 in B). There are also all the back fives of the sixes making a total of six!

## QUITE INTERESTING

Just William - this seems to have been a very popular name in the early part of the $20^{\text {th }}$ century as no fewer than 12 different ringers with the name rang in the six peals on the old bells - Powell, Pudge, Johnson, Bradford, Stone, Cotton, Page, Jones, Short, Fisher, Lewis and Edgington.

Old \& New - 11 ringers rang in peals on both the 1869 bells and the 1928 bells
Quiet Time - arguably the longest time without peals was the 23 years from the installation of the twelve in 1870 to the first peal on them in 1893. Between the second and third peals (1894-1910) there were $151 / 2$ years. In the modern era the longest gap between peals has been the $181 / 2$ years $(1975-94)$ when the tower was being restored after a pinnacle fell off in Jan 1976. A similar incident occurred on 26 Nov 2021 but has not resulted in prolonged silence.

Loud Time - Peal ringing at the cathedral has become much more of a routine affair in the last two decades. As recently as 2002 the normal annual total was 2 or 3 , now it is often double figures. The $50^{\text {th }}$ peal at the cathedral was not achieved until the end of 1998, the $100^{\text {th }}$ just ten years later, the $150^{\text {th }}$ in 2014 and the $200^{\text {th }}$ in 2019.

The most peals rung in a calendar year was 13 in 2015, the same number as the entire 1990's. 12 were achieved in 2009 and 2019, and 11 in each of 2011, 2017 and 2018. The shortest gap between peals (3 days) has occurred several times when there have been peals on Good Friday and Easter Monday, and also in September 2015.

Brothers - pairs of brothers have appeared together in peals on a number of occasions - Bill \& George Pye (1929), Henry \& George Fearn (1945), Ron \& Jim Diserens (1958), Martin \& Michael Fellows (1965), John \& Michael Chilcott (1971), John \& Ron Diserens (1973), Geoff \& Peter Randall (1995), Richard \& Michael Clements (2000), Bernard \& Malcolm Taylor (2006).

Fathers \& sons in the same peal - William \& Tom Lewis (1930), Geoff \& Gerald Hemming (1965), John \& Richard Clements (1974), David \& Matthew Hilling (1994), John \& Michael Clements (1996), Alan \& Andy Hartley (1996), Chris \& Ian Povey (1999), Michael \& Phillip Orme (2000), Andrew \& Mike Wilby (2006), Russell \& Nick Brown (2012), Mark \& William Regan (2015), David \& Ewan Hull (2018).

Fathers \& daughters in the same peal - John Clements \& Liz Orme (1996), Chris Kippin \& Eleanor Linford (2009), Michael \& Louise Palmer (2009).

Three generations - two families have three generations who have rung a peal at the Cathedral - the HEMMINGS, James (1928), Geoff (1935) and Gerald (1965), and the PIPES, Cecil (1962), Roderick (1966) and David (1994).

Clapper trouble - the $10^{\text {th }}$ is the 'unluckiest' bell, having had its clapper break in three peal attempts. It has also broken during service ringing after just 300 changes, the day after a peal (rather better luck!) Although not mentioned as occurring in peal attempts the tenor clapper is recorded as breaking in Jun 1973, Nov 1974, Oct 1975, Feb 1981 and Apr 1983 (five times in 11 years) and again in 2002 and 2004 which led to the installation of the innovative Wheeler woodenshafted clapper in May 2005.

Youngest - the youngest person to ring a peal at the cathedral for many years was David Jenkins who in Apr 1974 was 15y8m. Laura Davies, at 16y4m in Jan 2012 was the youngest to ring a 12-bell peal but both of these achievements were eclipsed by Alistair Smith who was 15y1m in Sep 2013. More recently, in Apr 2018, Ewan Hull rang one at the age of $15 y 9 m$.

Oldest - Chris Kippin, at $78 \mathbf{y} 6 \mathrm{~m}$, in Jun 2022, is the oldest person to ring a peal at the cathedral, eclipsing the previous contender, Neil Bennett (77y9m in Sep 2016). Other known septuagenarians are - James George (75y5m in May 1929), Alan Ainsworth (74y2m in Dec 2009), Jim Clatworthy (71y9m in Apr 2022), Rick Shallcross (71y4m in Jan 2017) and most recently, Chris Pickford (70y Jun 2022). There are possibly a few more.

Youngest tenor ringer - An article in the RW 2022 p. 86 states that Cyril Tansell was only 19 when he rang this bell to Stedman Cinques in Dec 1930. However the birth of Cyril Leonard Tansell is recorded as Nov 1909, making him actually 21 when he achieved this - still notable! He rang it again a few months later. Cyril rang 330 peals in all, his first when almost 16 and the last when almost 80.

Oldest tenor ringer - as noted above this was James George in May 1929, when aged 75. Chris Kippin rang it in 2014 when he was 71.

Two-and-a-half tons for Half A Ton - Bernard Taylor (2006), David Jenkins (2008) and Andrew Hartley (2014) all rang the tenor to celebrate entry into their sixth decade.
$\mathbf{1 0 0 0}^{\text {th }}$ peals - this personal landmark has occurred four times at the cathedral Alan Flood (1994), Swaz Apter (2004), Steve Barton (2005) and $1000^{\text {th }}$ as conductor, Bernard Taylor (2006).

Half centuries - six people have now completed 50 peals on the bells, a feat unimaginable even twenty years ago - Mark Regan (2011), Bernard Taylor (2013), Jim Clatworthy (2015), Ashley Fortey (2017), Chris Pickford (2017), and Dan Jones (2020). Two more are getting close.

Centurion - Mark Regan has achieved the unique feat of ringing 100 peals on the cathedral bells. Over one third of his current total have been on the tenor or treble.

Ladies on the box - only two ladies have rung the tenor - Alison Regan (2006) and Claire Roulstone (2008). The first lady to ring a peal at the cathedral was Amy Thomas in 1946.

Tired ? - In 1996 David Pipe 'turned in' the tenor the day after doing the same thing at Southwark Cathedral - two 48cwt bells to Maximus in a weekend!

Tired ? - In 1998 Andrew Mills rang the tenor 'behind', in between ringing two peals elsewhere on the same day, both of which were over 10,000 changes.

Not so tired - the tenor has been 'strapped' (rung by two people) on seven occasions - 'behind' in 1893, 1894, 1936, 1937, 1945 and 1953 - and 'turned in' in 1963 by Wilf Williams \& Bill Theobald.

Speed - The optimum speed for 12-bell peals, judging by the average and the spread of data is 6.2 minutes per course of Stedman Cinques and about 14 minutes for 6 leads of Cambridge Maximus. The fastest peals of both occurred in the same year, 2006-3h41 and 3h48m.

Married couples - first made an appearance with John \& Amy Thomas (1946), followed by Bill \& Claudia Critchley (1970), Stuart \& Barbara Piper (1994), John \& Stef Warboys (1996), Phillip \& Liz Orme (1996), Bob \& Ruth Smith (1997), James \& Jennie Taylor (1998), Mark \& Alison Regan (2002), John Loveless \& Linda Garton (2002), Martin \& Maggie Whiteley (2002), Bob \& Pat Newton (2003), Ian \& Wendy Campbell (2003), Paul \& Ruth Curtis (2004), Phil \& Gwen Rogers (2005), John \& Ann White (2007), Ian \& Claire Roulstone (2009), Andrew \& Liz Harvey (2011), Sam \& Sian Austin (2012), Simon \& Eleanor Linford (2018).

Unmarried 'couples' - in Oct 2016 Mark Regan and Bernard Taylor became the first pair to ring 50 peals together at the Cathedral. Mark has since achieved the same 'status' with Jim Clatworthy, Ashley Fortey and Chris Pickford.

Four eights on the same bells - Bernard Taylor has rung both the $7^{\text {th }}$ and the $8^{\text {th }}$ to peals on all four different octaves in which they appear - the front eight, middle eight, the C\# eight and the back eight.

Four eights to Norman Smith's 23 atw - A band consisting of Jim Clatworthy, Mark Regan, Bernard Taylor, Darran Ricks, Alex Byrne, David Jenkins, Dan Jones and Ashley Fortey have rung this composition on each of the four octaves - the front eight, the back eight, the C\# eight and the middle eight.
$6^{\text {th }} \times 2 \times$ David - David Bagley has only rung 2 peals here, with the odd distinction of ringing the same bell twice (the $6^{\text {th }}$ ) but from two different pits. The $6^{\text {th }}$ and 6b were swapped in 2003. Several others can claim the same thing but not in their only two Cathedral peals.
$6^{b} \mathbf{x} 3 \times$ David - The Flat Sixth has been in three different parts of the frame, the latest move in Sep 2020 being part of the rope circle improvement. David Jenkins is the only person to peal this bell from all three locations, and the only one who could.

Semitone Man - Middle Bell Supremo Jim Clatworthy has rung semitone bells to more peals than anyone (10) but hasn't rung the 9 \# or the $2 \#$.

Most on a bell - Ashley Fortey has rung the $10^{\text {th }} 25$ times.
Conductors - Mark Regan (34), Bernard Taylor (29), Darran Ricks (13), Jim Clatworthy (11), Alex Byrne (10) head the list, with Sid Holt on 8 and David Brown on 7.

Composers - Jim Clatworthy is well ahead of everyone else with 35, followed by Bernard Taylor (20), David House (10), Rod Pipe (10) and Darran Ricks (9).

Rarest bell - The semitones are obviously rung less often than the main twelve, and because the $2 \#$ is a recent addition it has so far been pealed only 6 times. The 9\# used to have the lowest peal total (now 15) and only Chris Pickford has rung it twice. However, both the $5 \#$ and $6^{\text {b }}$ have been rung in over 40 peals.

Most heard bells - The $7^{\text {th }}$ and $8^{\text {th }}$ appear in all the combinations so they are the most used bells, and they used to be part of the quarter chimes. The third most popular is surprisingly the $4^{\text {th }}$, just beating the $10^{\text {th }}$ and $11^{\text {th }}$.

All 16 bells are heard every week, because 3 of the semitones (2\#, 5\# and 9\#) are used in the popular combinations. The 6b, although less rung, is now heard as one of the clock quarter chimes $(4,5,6 b, 9)$.

Longest ringing - The longest time for a peal was 4 h 20 m in Jan 2001. However the peal rung in Nov 1969 had a false start of over 40 minutes - the bells were called round and the peal re-commenced without stopping. Added to the peal time of 3 h 47 m this meant the bells were rung continuously for $41 / 2$ hours.

Local yokels - ten of the Top Twenty Leading Ringers on the bells are in the current local band - Alex Byrne, Tom Childs, Jim Clatworthy, Ashley Fortey, Craig Homewood, David Jenkins, Dan Jones, Darran Ricks and Bernard Taylor.

## PEAL SPEEDS

As ringers seem quite interested in the speed of ringing here is some analysis of the first 136 Twelve-Bell Peals rung on the 1928 bells. CPM = changes per minute, normalised for 5019 changes for Cinques and 5040 for Maximus.

| PEALS 1928-2019 |  |  |  |
| :---: | :---: | :---: | :---: |
| Number | Stage | Av Time | CPM |
| 70 | CINQUES | 3 h 56 m | 21.274 |
| 66 | MAXIMUS | 4 h 1 m | 20.897 |
| 136 | all | 3 h 59 m | 21.091 |

The tenor had a revolutionary wooden-shafted clapper installed in 2005. It is often credited with speeding up peal times, but in fact they have barely changed, if anything being a bit slower -

| PEALS 1914-2005 (metal clapper) |  |  |  |
| :---: | :---: | :---: | :---: |
| Number | Stage | Av Time | CPM |
| 30 | CINQUES | 3 h 51 m | 21.718 |
| 22 | MAXIMUS | 4h 2 m | 20.851 |
| 52 | all | 3 h 56 m | 21.351 |
| PEALS 2005-2019 (wooden clapper) |  |  |  |
| Number | Stage | Av Time | CPM |
| 40 | CINQUES | 3 h 54 m | 21.487 |
| 44 | MAXIMUS | 4 h 1 m | 20.920 |
| 84 | all | 3 h 58 m | 21.190 |

The tenor clapper had a replacement ball in early 2011 which was significantly larger than the original. Peals of Maximus have slowed down.

PEALS 2005-11 (wooden clapper v.1)

| Number | Stage | Av Time | CPM |
| :---: | :---: | :---: | :---: |
| 15 | CINQUES | 3 h 54 m | 21.465 |
| 15 | MAXIMUS | 3 h 58 m | 21.147 |
| 30 | all | 3h 57 m | 21.306 |


| PEALS 2011-19 (wooden clapper v.2) |  |  |  |
| :---: | :---: | :---: | :---: |
| Number | Stage | Av Time | CPM |
| 25 | CINQUES | 3 h 53 m | 21.500 |
| 29 | MAXIMUS | 4 h 2 m | 20.802 |
| 54 | all | 3 h 59 m | 21.125 |

The ball of the tenor clapper broke Dec 2019 and the first peal in 2020 was rung with the old metal clapper. Use of the Version 3 wooden-shafted clapper commenced in Feb 2020 and it has been rung to 4 peals.

## PEAL BOARDS



There are 12 peal boards in the ringing room and 3 in the Teaching Centre which show the details of the following 17 peals (two of the boards contain more than one peal) -

| 14 Dec 1893 | 5093 | Grandsire Caters | First peal at the cathedral |
| ---: | ---: | :--- | :--- |
| 10 Dec 1894 | 5057 | Grandsire Caters |  |
| 20 May 1910 | 5040 | Grandsire Caters | In memoriam Edward VII |
| 2 Jun 1914 | 5019 | Stedman Cinques | First peal on the twelve |
| 23 Aug 1919 | 5000 | Plain Bob Royal |  |
| 11 Dec 1920 | 5003 | Grandsire Caters |  |
| 26 Dec 1928 | 5007 | Stedman Cinques | First peal on the recast twelve |
| 29 Nov 1934 | 5037 | Grandsire Cinques |  |
| 28 Jan 1936 | 5003 | Grandsire Caters | In memoriam George V |
| 9 May 1945 | 5057 | Grandsire Caters | Victory in Europe |
| 3 Jun 1953 | 5021 | Grandsire Caters | Coronation of Elizabeth II |
| 4 Apr 1994 | 5015 | Grandsire Cinques | Tower Restoration |
| 4 Aug 2000 | 5100 | Stedman Cinques | 100 th birthday of Queen Mother |
| 29 Apr 2011 | 5040 | Cambridge Maximus | Royal Wedding |
| 11 Jul 2012 | 5019 | Stedman Cinques | Visit of HM Queen Elizabeth II |
| 27 Oct 2012 | 5007 | Stedman Cinques | In memory of Alison Regan |
| 11 Nov 2018 | 5039 | Grandsire Caters | Armistice Centenary |

## PEAL BOOK

A Grand Peal Book was given to the Guild in 2015 by Steve \& Joyce Barton, within which Clare Griffiths (of Exeter) is providing hand-crafted illustrated details of each peal. Below is a sample -


It is displayed in the Teaching Centre in a purpose-built cabinet.
This is very much work in progress - it will likely take Clare another four years to catch up with what has been rung, but as we are likely to keep ringing ten or so a year while she is doing this, the book will probably not be up to date until 2028.

Such lovely work is quite expensive. Of the 210 peals rung up to 7 Mar 2020, 132 (last one 2 Jun 2012) have been written up - the remaining 78 peals are being funded by individual donations, total requirement $£ 2,730$.

For those from 4 Sep 2021 onwards part of the $£ 10$ per rope peal fee will be set aside for this work. So far this amounts to $10 \times £ 35=£ 350$.

## THE REEVES HANDBELLS

In 1893 Harvey Reeves (1841-1911), a native of Worcester and Editor of 'The Bell News' (from 1881 to his death) presented the ringers with a set of 31 Shaw handbells which are stored in a wooden box in the ringing room. This marked the creation of the 'Worcester Cathedral Guild of Voluntary Bell Ringers' which later became the 'Worcester Cathedral Guild of Change Ringers' and today is the 'Worcester Cathedral Guild of Bellringers'.

The set's largest bell is 19 F with $21 / 2$ octaves above it, running up to 1 D . The various semitone bells between the diatonic notes make them almost fully chromatic so that octaves, and some double octaves, are available in many keys.

The most useful change-ringing bells were re-handled and refurbished by Whitechapel Bellfoundry in 1998-99, giving a twelve in C (size 15) and, using the Bb for B a light ten in F (size 12). These are shown in red. (Adding the top Bb and C makes this into a light twelve but these two need renovation). The bottom four bells are also in good condition but the others have poor handles and need some attention to be of any use.

They are arranged in the box as below, starting with the 19F at the back left and running up in note alternately right then left -

| $\rightarrow$ |  |  | F | G | A | Bb | B |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | F | E | Eb | D | C\# | C |  | $\leftarrow$ |
| $\rightarrow$ |  | F\# | G | G\# | A | Bb | B | C |  |
|  | G\# | G | F\# | F | E | Eb | D | C\# | $\leftarrow$ |
| $\rightarrow$ |  | A | Bb | B | C | D |  |  |  |

Some research is needed to find out what peals have been rung on them. Four were definitely rung at Spring Lane in 2013 but there may be more. It is believed they have not been pealed at the cathedral. A few quarter peals were rung in 2014-15 and in 2020.

## Notes

The full details of all peals on the bells are on the Guild website www.worcesterbells.org.uk/peals-database. These are also being written up in ornamental style in the Grand Peal Book on display in the Teaching Centre but it is a project some way off completion. For this Jim Clatworthy cross-referenced the details with their publication in Bell News and The Ringing World, and tidied up the footnotes, up to Peal \#160 on 13 Feb 2016. At some point Clare Griffiths will need details of the other 50 peals but not for a while.

A complete list of peals appears on the Felstead database site at www.cccbr.org.uk/felstead/tbid.php?tid=5668 A list since 1985 (with full details from 2005) exists on the Ringing World site www.peals.co.uk. but this has not been updated since 27 Oct 2020. The plan is for their new site, Bellboard, www.bb.ringingworld.co.uk to become the main record for all ringing, including peals.

The peals database is Philip Saddleton's Pealbook program. To place a file on the WCG website worcesterbells.co.uk it is 'exported' from the program as a .csv file with the Format choices TABLES = Full and INCLUDE = Tabs. It needs to be sent to Caroline at cnpawley@gmail.com and no longer, as originally set up, to richard@enrichdesign.co.uk

Bernard Taylor


[^0]:    ${ }^{1}$ Liverpool, Exeter, St Paul's, York, Wells, Redcliffe and Southwark have heavier tenors
    ${ }^{2}$ There are a further two Natural Minor Tens on which no peals have been rung - see footnote under Harmonic Minor Ten section
    ${ }^{3}$ Sir Edmund Beckett Denison (1816-1905) was not actually Lord Grimthorpe until 1886, some years later than the Worcester twelve. He is famous for his escapement mechanism used on the Westminster Clock (1851) and the design of the five chiming bells including Big Ben (1852 \& 1858).
    ${ }^{4}$ The $5 \#$ was cast with the twelve in 1869 and intended for use as part of the clock chimes. The 6 b and $9 \#$ were added in 1875 when the carillon was installed. It operated on 14 of the 15 bells, using 28 hammers.

[^1]:    ${ }^{5}$ The Minor scale used is HARMONIC because the seventh note, from the bottom, is sharpened (5\#). If the $5^{\text {th }}$ bell was used instead this ten would be in a NATURAL minor scale, which is a major octave plus a semitone and full tone beneath. Worcester has a second Natural Minor Ten being the Front Eight plus the 9\# and $10^{\text {th }}$ bells, that is $1,2 \#, 3,4,5,6,7,8,9 \#, 10$. The third type of Minor scale is the MELODIC but as it has different notes going up and down it is unsuitable for change ringing.
    ${ }^{6}$ The 2016 bells at Taunton have a $5 \#, 6 b$ and $9 \#$ like Worcester but only the 6 b is a ringing bell. So there is a Harmonic Minor Ten available but only on its new chiming machine.
    ${ }^{7}$ The 5 \# has now been moved to the old pit of the 6 b , and the 6 b rehung in a new frame under the bourdon, so that as of October 2020 the ropes are all in the correct positions.

[^2]:    ${ }^{8}$ Christ Church Cathedral, Dublin has 6\#, 9\# and 13\# semitones in addition to its ring of sixteen, which are equivalent to $2 \#, 5 \# \& 9 \#$ in its back twelve, though they never were a ring of twelve, being augmented from 10 to 16 in 1999 and acquiring the 6\# at that point.
    ${ }^{9}$ Of the rings of twelve 21 have this combination. Winchester's 14 with its 8 b and Perth's 16 with its 10 b effectively have the same.
    ${ }^{10}$ The only bell at the Cathedral dedicated to a female saint. The Twelve are named after the disciples - Matthias, Thaddeus, Simon (the Zealot), James (the 'Lesser', son of Alphaeus), Matthew, Bartholomew, Thomas, Philip, Andrew, John, James (the 'Greater', son of Zebedee) and Peter. The other semitones are named Paul, Mark and Luke. The Bourdon or Hour Bell, one of only 28 bells in Britain over 4 tons, is not named.

[^3]:    ${ }^{11}$ Sherborne Abbey has the heaviest ring of eight bells. Naturally there are back eights within the rings at Liverpool, Exeter, St Paul's, York, Wells, Redcliffe and Southwark, so this octave is the eighth heaviest in the world. Some of these back eights, but not all, have been pealed.

[^4]:    ${ }^{12}$ See earlier footnotes about Taunton which has the same, but the 5\# and 9\# are chiming bells only, and Christ Church, Dublin with its 9\# and 13\#.

[^5]:    ${ }^{13}$ It is unlikely that the semitones for the old ring were hung for ringing. Though the present ones are, anecdotal evidence suggests that for many years only the $6 b$ routinely had a rope on it! For some reason the local tradition has been to refer to the three semitones as 'flats' not 'sharps' $-4 b, 6 b$ and $8 b$. This is misleading because the bells should be named after the bell they replace in the twelve ( 5 \# replaces the 5 th, 4 b does not replace the $4^{\text {th }}$ ) and also because musically they are actually sharps - the C\# octave has an E\# and B\# in it, just as the front eight in F\# has an E\# in it. The $6 b$ is genuinely a flat, as the $6^{\text {th }}$ is an A\# and the $6 b$ is an $A$.

[^6]:    ${ }^{14}$ Worcester is one of only five towers having both a $2 \#$ and a 6b-the others are Buckfast Abbey, Hull, Dublin (S Patrick's) and Winchester. In the last case the 1992 augmentation to 14 means the bells are now 4\# and 8b.

