

The Ellacombe Chimes

Support Group for enthusiasts of all forms of tower bell chiming around the world

what – why – where – when – how ?

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The history

The Ellacombe Chiming frame is a device that enables one person to ring all the bells. It was invented in approximately 1821 by the Revd. Henry Thomas Ellacombe and installed in 1822 by his “clever workman” in the Parish of Bitton, located between Bristol and Bath. It is said that Revd. Ellacombe (his portrait is shown here) devised the mechanism so that all the bells could be rung by one trusted person without involving a band of unruly and perhaps drunken ringers.



- Two articles from the 1880s are available here that describe his life's achievements...

from the Church Bells magazine at the time he retired as one of the editors at...

https://drive.google.com/file/d/1BgWyG0atOhPmVCQTEkn3c7r9_Kzx4uZD/view

from the Transactions of the Bristol and Gloucestershire Archaeological Society after his death

https://drive.google.com/file/d/1gnfxF1yK3F_rqaLaqMf98eMX2-bYAUEn/view

** On the 26th June 2021, a worldwide celebration took place for the 200th anniversary of the Revd Henry Thomas Ellacombe's invention of the device.*

For more information about the event see...

www.bittonhistory.org.uk/ellacombe-chimes-bicentennial

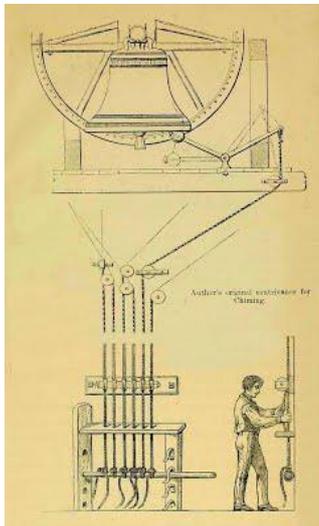
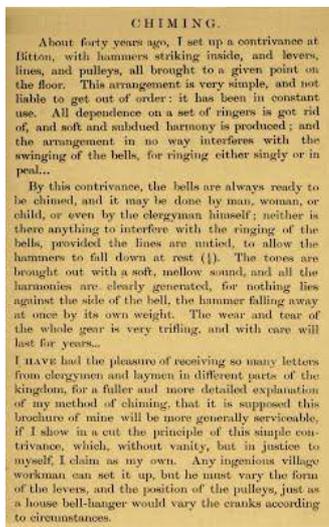
and

<http://www.bittonhistory.org.uk/wp-content/uploads/2021/02/Chimes-Leaflet-FINAL1.pdf>

Links to over 100 video recordings on that occasion are at...

www.churchside1.plus.com/EllacombeWorldwideVideos.htm *

Here are the Revd. Ellacombe's own words and a drawing taken from the 4th edition of his book *Practical remarks on belfries and ringers published in 1878* (select to enlarge) ...



The Revd. Ellacombe's complete book is available online in Archive.entitled...
 'Practical Remarks on Belfries and Ringers' at...

www.archive.org/stream/practicalremarks00ella?ref=ol#page/n5/mode/2up

In *The History of Bitton* published in 1881 the Revd. Ellacombe wrote:

“In the basement of St Mary’s tower Bitton is a manual within a case for chiming the bells for services by means of a hammer striking the inside of the bell. This was set up in 1822. The method was suggested to me by Sam Watts, a clever workman, and is supposed to be the first thing of that sort. Since that time the contrivance has been set up in about 200 towers.”

(courtesy of www.stmarysbitton.org.uk)



This is a lithographic drawing from the Rev. H.T. Ellacombe's book *"Bells of the Church"* that has the caption: *"at St. Martins in Fields the steeple keeper, has by himself for many years chimed the bells in the way here represented"*.

The drawing gives a good impression of how the Revd. Ellacombe saw some churches coping without a co-operative ringing band before his invention was available.

The impact of the Revd. Ellacombe’s invention and recognition that it could be used to play tunes, must have been significantly enhanced by the publication in 1889 of William Haley’s 150 page book entitled: *"The Bell Hymn Book"*. It is in effect a beginner’s guide to playing hymns on the Ellacombe Chimes. Haley wrote these words in the introduction to the book:

"The following pages have been compiled, believing that the labour bestowed thereon will tend to supply a long-felt want, and to make the Chimes of the Village or Parish sound their notes in such succession as shall lead, perhaps, to higher thoughts and desires than simple permutation, and changing positions".

The book then has 9 pages of ‘instructions’ for beginners (albeit in a somewhat dated writing style), followed by the music for 143 hymns using his system of notation, with 2 tunes for 5 bells, 6 for 6 bells, 24 for 8-bells, 20 for 10-bells, 44 for 12-bells. There are other references to the book further down this page.

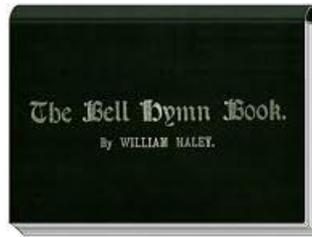
William Haley was the son of Henry Haley, who was well recognised in the ringing world at the time. By the age of 23 he had composed and called his first peal - Stedman Caters. He also rang and called many peals on hand-bells and organised the first ever peal of Stedman Triples on handbells in 1853. He was one of a party of ringers who travelled to the USA in 1850 and called the first ever peal there of Grandsire Triples in Christ Church, Philadelphia.

William Haley his son was employed as a bell tuner with John Warner & Sons Ltd., who were bell founders at Cripplegate, London and so he would also been very knowledgeable on all aspects of bell ringing. His company also made handbells Carillons and Ellacombe Chimes equipment.

At the dedication of new bells at St Lukes in Deptford in 1877 William Haley played tunes on

the bells using a temporary Ellacombe chimes rack set up within the church. Both father and son took part the dedication ring of the new St Paul's Cathedral ring of twelve in 1878.

William Haley's expertise, his involvement with chiming and the publication of the book could well have gone some way to overcome the schism that existed for more than a century between those clerics who suffered from undisciplined ringers and hence advocated chiming in their churches, and those ringers who were disciplined, sober and dedicated to the art of change ringing and methods. Today there are Haley descendants around the world, and some are musicians.



The first eleven pages of the book (plus the Ellacombe hymn tune) are here...

<https://drive.google.com/open?id=1TVEE1GjieWlptVPASQo3O6zgtWr0YXSI>

Although many church towers have had Ellacombe Chimes in the past, countless have either been completely removed (leaving just the holes in the ceiling), or have not been maintained so can no longer be played. There were several factors that contributed to this...

- o When towers were upgraded (eg 6 to 8 bells) or the frames were replaced the chimes were not also upgraded.
- o All bells must in down position for chiming, and in the past heavier bells were frequently left in the up position.
- o In periods when a keen band of ringers were available the chimes mechanism was not adequately maintained.
- o Chiming is a one person activity and most ringers prefer the team activity of full circle ringing.

Identifying towers that chime

No definitive list of towers in the UK fitted with Ellacombe Chimes and others that chime has been found. *Dove's Guide* (<http://dove.cccbr.org.uk/>) does not identify "Ellacombes" or "chimes". According to that guide there are about 7000 bell towers in the British Isles with 3 or more bells and 1165 towers with 6 or more "ringable" bells. However identifying those that have Ellacombe Chimes is difficult.

An interesting example is the county of Kent. *Love's Guide for Kent* (<http://kent.lovesguide.com/>) lists 220 towers with 6 or more ringable bells . A search of the guide reveals that there are...

- 27 towers with Ellacombe chimes
- 22 of those have less than six bells so can not play music
- 4 have six bells (out of a total of 121 six bell towers)
- 1 has eight bells (out of a total of 103 eight bell towers)

Hence there are surprisingly few towers with Ellacombe Chimes in Kent. Knowing there are 83 counties in the UK an extrapolation of the Kent data could mean there are no more than a few hundred remaining throughout the UK.

<http://warksbells.co.uk/index.php/others/chimes/gbchimes> lists 728 UK bell towers, of which 110 are identified with Ellacombe Chimes, with 63 having lost them. 44 towers have electric or other automated means of chiming.

<http://keltektrust.org.uk/> is a charity that finds new homes for surplus and redundant bells and has spreadsheets indentifying tubular bell towers with 144 extant listed, and hemispherical bell towers with 56 extant listed and identifies 120 towers where they have provided bells for chiming and has Mike Chester's Spreadsheet 700+ list of towers with chimes, of which 126 refer to "Ellacombe".

Although this study set out to research traditional English bell towers with a full circle ringing capability and have Ellacombe chimes fitted, it has long since been realised that this site would not be complete without including towers with tubular and hemispherical bells. Most, if not all of these are fitted with Ellacombe chimes frames, the techniques used for ringing in these towers is the same, as these videos from St James' Church, Riddings and Maentwrog in Wales demonstrate...



the links associated with these images don't work in the PDF version, please use these...

http://www.youtube.com/watch?v=L0Q_6_mm4YM and <http://www.youtube.com/watch?v=wxhQyyU25oI>

Tubular bells and hemispherical...



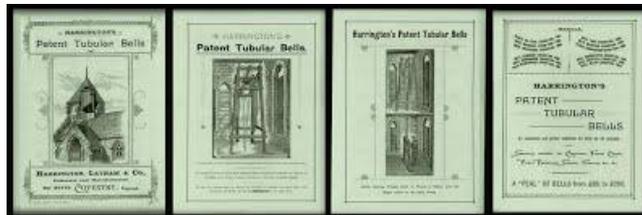
Most importantly the bells and Ellacombe frames in these towers have generally been in continuous use for well over 100 years and have accumulated far more experience, techniques and music than towers with a full circle ringing capability in situations where the Ellacombe chimes have had just an auxiliary role. We are now in no doubt that there are many benefits in sharing the collective knowledge, expertise and resources between all forms of chiming.

<http://www.stpetersformby.org> lists 242 tubular bell towers in the UK, using an Ellacombe frames.

There are also a considerable number of tubular bell towers with Ellacombe chimes frames in Commonwealth countries such as Australia, New Zealand and Canada, and there are a large number of tubular bell towers in the USA listed in... <http://www.towerbells.org/> In many installations in the USA, the Ellacombe frame is known as a 'taut-rope chiming rack' or just 'taut-rope rack'.

Harrington's Tubular Bells

Most tubular bells were constructed by Harrington's of Coventry between 1890s and the 1920s using their patented design. John Harrington had developed and patented the design as early as 1884. The quality and tone of the chimes earned him a gold medal at the 1885 Paris World Fair. A USA patent was granted in 1888.



part of Harrington's tubular chimes sales brochure in the 1890s

Harrington's claimed that:

- The tone was mellow and pure and their bells were only a fraction of the price of "ordinary bells"
- With no swinging, there was less strain on the building and could be in any bell tower without alteration
- They were not liable to crack, or get out of tune and could be rung by one person using cords

It is known that Harrington's installed several hundred of their tubular bells in churches and other buildings around the world in countries as far away as Australia, Canada, New Zealand, South Africa and the USA. Many are still in working order and use Ellacombe frames.

In 1894 Walter Durfee of Rhode Island in the USA ceased importing Harrington's tubular tower bells and began manufacturing them under his own name, continuing to use Ellacombe frames. Later Durfee became the president of the *United States Tubular Bell Company* which also used Ellacombe frames for their bells. Some of these still exist in North America but the Ellacombe frame is sometimes known as the 'taut-rope chiming rack' or just 'taut-rope rack'.

Other means of Chiming

Some towers are fitted with Clavier style keyboards as an alternative to Ellacombe chimes. These devices, also called consoles, are normally associated with Carillons with a much larger number of bells. The www.britishcarillons.org defines a Carillon as having 23 or more bells. Mike Chester's spreadsheet in <http://keltektrust.org.uk/> identifies Carillons 31 in the UK. However Claviers are also used in many towers with less than 10 bells performing similar roles

to Ellacombe frames.

Mike Chester's same spreadsheet identifies 94 with Claviers that are not Carillons, mostly with between 5 and 8 bells. The claviers at Stanington and at St Mary's, Harrogate are shown here, together with a video of the 8 bell Clavier at St Mary's, Stanington Church, Northumberland being played...



Eight bell claviers at Stanington and Harrogate



Dedham Parish Church

There is one further group of towers that chime which is exemplified at Dedham Parish Church in Essex. Traditional full circle ringing was suspended there in the 1860s when cracks were identified in the Tudor tower. Since then the full circle ropes have been used to chime the eight bells. Until a few years ago the ropes were tied directly to bell clappers, sometimes strangely referred to as "Clocking" (see **Risks**). However this arrangement was replaced in 2012 and the ropes are now connected to trigger hammers, and a team of ringers continue to use the full circle ropes to chime rounds, call changes and some well know sequences. A 10 minute video at: <http://www.youtube.com/watch?v=Aniat5vLucs> shows visitors to the church being invited and succeeding to ring Rounds and Queens. Relevant parts are at 3mins and 7mins in The ropes move by only 12 inches or so and the trigger hammers mean that that the hammer cannot be held on the bell. The hammers are well balanced, very light to pull, have just the right amount of bounce and damping at both ends of the rope movement, making the bells very easy to ring. However, visiting ringers experienced in methods find it difficult to adapt to this unusual configuration in the short time available during a visit because...

- The inertia normally created by a heavy bell's rotation is not present resulting in completely different timing
- There is no equivalent of a hand stroke and back stroke
- Conventional "rope sight" used by methods ringers does not apply

This Dedham style of chiming is known to be used in some other towers in the UK that have structural problems, including at Thorpe St. Andrew near Norwich, and the technique has also been temporarily adopted elsewhere, for example it has been used to play carols at Christmas at some locations because of its similarity to hand bellringing. There is more about the techniques in **Alternative methods of chiming**.

In 2011 orchestral conductor, Charles Hazlewood worked with the BBC to made a television programme entitled: "Come Bell Ringing". As part of the programme he set about seeing if church bells in Cambridge could be used to make music and he organised a *temporary* conversion of the bells in St. Edwards church so that the they could be chimed and play a tune. The technique they used was very similar to the second method in.. **Alternative methods of chiming**.. The one hour programme is available on YouTube at...



<https://www.youtube.com/watch?v=leTh9XfMFU8>

the relevant section involving chiming is 36 minutes in

A list of towers with chiming mechanisms around the world is being continuously developed and can be seen at...

https://drive.google.com/file/d/0B5qdhG_2Ua58QjRpdWZrQ3Nic3M/view?usp=sharing

the list currently has a total of **481** entries
with 427 in the UK, 14 in the USA, 12 in Canada, 11 in Australia,
6 in Asia, 4 in Ireland and 6 in New Zealand

However, we believe there are at least **550** Ellacombe devices and **120** baton claviers around the world, not necessarily all in working order.

Comparisons with Full Circle Ringing

There are many differences between full circle ringing and chiming...

- Chiming is generally much quieter than full circle ringing for two reasons:
the chiming hammers are normally lighter and slower-moving than the clappers so less energy is fed into the bell. Also at the point when a rotating bell sounds, the bell is horizontal with the opening facing the orifices and louvers, whereas chiming bells are always vertical with the openings facing the floor. Hence chiming may be more acceptable to those living nearby.
- The sound is different, rotating bells create a pleasant "tremolo effect".
This is caused by Doppler shift, whereas stationary bells sound more "dead". The clappers and hammers strike different regions of the bell, generating different harmonics. When chiming and the bell is vertical some high frequencies are also absorbed into the structure and floor.
- When full circle ringing the tremolo effect tends to conceal that bells are in out of tune, flat or harsh.
- When full circle ringing with one person per bell, the bells can be rung closer together and faster.
- There is more control of timing when chiming, enabling rhythm and tunes to be played.
- When chiming, two notes can be struck as a cord, which also conceals that bells are out of tune, flat or harsh.
- As the bells remain stationary during chiming, minimal strain is placed on the tower structure, so chiming is often permitted when full circle ringing is not.
- Chiming is a safer activity for all involved. There are less moving parts and far less energy is being transferred and dissipated. Hence it is ideal for the participation of children.
- Chiming the tenor bell is less demanding and produces an appropriate sound for funeral tolling.
- Learning to play the Chimes is easier and quicker than mastering full circle ringing.
- When chiming "call change" sequences can be extended longer than the number of bells.
- Full circle ringing requires several experienced ringers, whereas chiming requires just one. Hence, full circle ringing is a sociable team activity, whereas chiming can be a solitary and perhaps a lonely task.

In summary, to the experienced full circle ringer and to the tuned professional ear there are significant differences, however to many in the audience outside there is little or no difference, and the pleasure of hearing the bells ring out is definitely what counts.

Why Chime?

Several reasons have been identified as to why Ellacombe Chimes and other forms of chiming are used:

1. Full circle ringing is no longer permitted because the tower or frame can no longer take the strain of rotating bells.

In some of these situations the "historical importance" of the ancient frame results in an unfortunate embargo on any restoration work.

2. Long delays for refurbishments to the full circle ringing mechanism due to planning issues and/or lack of funds.

In some of these situations new Ellacombe Chimes have subsequently been installed.

3. When there are insufficient ringers for full circle ringing, particularly for mid-week occasions, holiday times, etc.

Families organising weddings and funerals are frequently offered only full circle ringing at the planning stage and

are advised of the cost. However, occasionally nearer the event a band cannot be mustered for a mid-week event

and sadly no alternative is offered.

4. Music can be appropriate for some occasions, such as carols for Christmas, special hymns for lent and funerals,

well known music for secular activities, for example: national days, celebrations, garden parties, birthdays, etc.

5. Tubular and hemispherical bell towers where the only means to ring is with an Ellacombe or Clavier style frame.

In most of these situations the availability of bells and chimes attracts weddings to a church that might otherwise go elsewhere. Sadly as congregation numbers fall generally, there is less motivation and finance available for church and tower restoration work, and an increasing number of churches find themselves in some of the situations above, so alternative techniques for continuing bell ringing are being considered, albeit as temporary arrangements.

Furthermore, in the past local craftsmen such as blacksmiths, carpenters and wheelwrights, together with farm labourers would have undertaken much of the repair and restoration work required in the bell tower as unpaid volunteers. However today many of the local skills are no longer available and together with higher safety standards it is now necessary to bring in the professionals to undertake even minor tasks incurring significant costs.

Types of equipment

The device is in two parts: “counter-balanced under-hammers” that strike just inside the rim of each bell and a wall-mounted rack in the ringing chamber with ropes that go up to the bell chamber via a series of pulleys. More recently “trigger action hammers” have been fitted in some towers to overcome the problem of hammer chatter...



conventional hammer and trigger hammer

The images of frames on the web indicate that no two are the same in size and shape. The ropes on most are designed to be pulled outwards, as shown on Revd. Ellacombe’s original drawing, but some are apparently pulled downward. The majority of YouTube videos show ropes being pulled outwards. Examples of frames are shown here...



The more modern frames have “ratchet and pawl” sets that are used to winch the ropes to the required tension prior to chiming and which can be easily released after chiming has finished. However, some have only a set of hooks to fasten and unfasten individual ropes.

Sallies, or some kind of tubing, is often fitted over the ropes within the frames to protect the hands from the coarseness of the rope.

Risks

Mike Shelley submitted a paper to the weekly 'Ringing

The mythical dangers of chiming

by Mike Shelley

For the 75th anniversary of VJ Day, the Central Council advised that ringers could chime a single bell or do a short period of group ringing in compliance with the current guidance at the time. I was frustrated by this because many towers with bells hung for full-circle ringing also have the potential to have all their bells chimed by one person using 'Ellacombe' frames, baton claviers or other methods. I believe that the disregard for chiming is motivated by misunderstanding of possible risks that chiming is believed to present, and this article tries to unpick these. I'll try to allay the fears that full-circle ringing and chiming can't peacefully co-exist in the same tower...

World' magazine entitled *The mythical dangers of chiming*. It was published in the 30th October 2020 edition of the magazine and a copy of his paper is here...

https://drive.google.com/file/d/1_bLEV6roDuzhPjyacYuptDLLIZs_t3ww/view

Ellacombe hammers left up

If the tower is equipped for and capable of full circle ringing then, after a spell of chiming has finished, there is the risk of damage if a chimes hammer is inadvertently left in the raised position and is hit by rotating bell while the bells are being put up for full circle ringing. The conflict will result in second muted strike and the bell should be lowered immediately, else it can cause a bell to jam and stop dead. The dissipation of the kinetic energy stored in the moving bell and clapper can cause serious damage. In the worst case the bells can be chipped on the rims or even cracked and the chimes hammers could be bent out of the way. Clearly there needs to be a clear indication available to the full circle ringers that the chimes hammers and ropes have been left in the correct position to allow full circle ringing to commence.

Similar problems exist when there is a striking clock in the tower.

Ellacombe hammer jamming

There is a tendency for the bells to start to swing during chiming. The effect can be seen in this video: <http://www.youtube.com/watch?v=7MugF9X9y4Y> from St. Giles, Cheddington. If the speed and vigour of chiming is in synchronisation with the natural swing period of the bell, the amplitude of that swing increases. Under these circumstances it is possible for the hammer to eventually become jammed against the rim of a bell, stopping the swing dead and potentially causing similar problems described in the paragraph above. It will then be necessary to climb the tower to free the hammer. However, the dissipation of the energy stored in the moving chimes hammer (which only moves a few inches) combined with a slowly swinging bell is small compared with that of a fast moving bell and clapper as described above, so the damage in this case is likely to be minimal.



This photograph shows two polished area of wear on the inside of a typical bell caused by the chimes hammer (on the left) and the clapper (on the right), resulting from 50 to 100 hundred years of use. The extended diagonal area caused by the chimes hammer shows that it has occasionally struck the bell very close to the rim.

The extent to which the bells swing during chiming appears to vary greatly from tower to tower due to the varying amount of friction in the rotating and moving parts. Factors include types of bearings, number of pulleys and guides, length of ropes, vertical alignment of the main ropes and how frequently and recent full circle ringing has taken place.

If full circle ropes are fitted and are visible to the chimer, their vertical movement gives an indication of how much the bells are swinging. In some towers the full circle ropes are temporarily tied to the wall to overcome this using cleats or brackets. If full circle ringing no longer takes place in a tower then the wheels can be tied to the bell frame to avoid the problem.

Trigger-action hammer overshooting bell

A similar risk exists when trigger-action hammers are used. In this case, if the bell is allowed to swing far enough, there comes a point when the hammer completely misses the bell. The hammer goes right over to the other side of its fulcrum. Again no damage is caused, as in this case the bell is not stopped by the hammer, but it is necessary to climb the tower to reset the

hammer by swinging the bell and flipping the hammer back over the fulcrum when there is enough gap. This requires careful timing to avoid the bell jamming on the hammer.

www.stmarysbitton.org.uk refers to: *the "Bitton Method" is said to be kindest to the bells and the least likely to cause damage.* An explanation of this method has not yet been established.

Excessive hammer and clapper chatter

If a hammer or a clapper remains in contact with the bell after striking, the contact will create "chatter" which in the worst case can lead to a bell cracking. When chiming a sharp "jerky" movement is necessary to avoid this, furthermore it is important to have the ropes adjusted to the optimum length (see **At the beginning of a session**). Trigger-action hammers are designed to overcome it.

Excessive chatter leading to cracking is also said to be a particular risk associated with the practice of tying the ropes directly to bell clappers, which is sometimes strangely called "Clocking". The practice has little to do with clocks and is more appropriately called Clapper Chatter. There is more in...**Understanding and Coping with Clapper Chatter**.

Bell chatter can never be completely avoided, for example in Full Circle Ringing, at the end of a session when the bells are stood in the up position and the clapper comes to rest on the bell some chattering takes place.

Isolated chiming location

If the chimes frame is located in an isolated bell ringing chamber up in a tower, there may be risks to a lone person regularly negotiating a spiral staircase and chiming alone. An established solution is to invite two persons to ring for services and weddings, which also spreads the effort. Other solutions are in **Alternative ways to chime**

It may also be worth considering moving the chimes frame to a more suitable position on the ground floor. The ropes would undoubtedly already pass horizontally via pulleys to reach the frame fixed to the wall, so moving it may well be relatively simple and worthwhile. If the frame is moved to a prominent position an added benefit would be that the ringer would see and be seen by other members of the Church community, although there would need to be a method of securing the ropes within the frame to protect against unauthorised use. With a ground floor location chiming is then ideal for accompanied children to participate.

"Firing" the bells using Ellacombe Chimes

Firing is when all the bells are rung at once and is a traditional full circle ringing technique. It is frequently performed for celebrations and special occasions such as at coronations, weddings, Christmas Eve, and New Year eves, etc.

There is a video at: <https://www.youtube.com/watch?v=HpYgK3HGqxc> showing firing all eight bells from an Ellacombe Chimes frame at St Thomas Cathedral in Kuching, Malaysia. Kuching Cathedral is a modern structure and is clearly capable of taking this strain. However, in most ancient bell towers the effort used to "fire" all the bells together using Ellacombe Chimes could well pull the frame from the wall, so cannot be recommended.

Risk Assessment & Insurance

CCCBR has a 9-page Guidance Note entitled: **Tower Safety and Risk Assessment** that may be useful at...

www.cccb.org.uk/wp-content/uploads/2016/03/GN4v9.pdf

and an 8-page **Guidance on Insurance and Ringers** at...

www.cccb.org.uk/wp-content/uploads/2016/03/GN1-2-June-2015.pdf

Chiming styles

Here is a summary of the range of chiming and music styles that can be performed on the Ellacombe Chimes:

Rounds

This is the simplest and most familiar form of bell ringing, consisting of a sequence starting with the highest note and descending to the lowest.

Change Ringing or Call Change Sequences

During change ringing the positions of bells are interchanged to create a melodious sequence. When chiming, these well known sequences can be played directly, without going through the



intermediate steps. The sequences can also be interchanged at random. Examples of well known sequences are: Kings, Queens, Tittums, Whittingtons, etc.

Listen here... https://drive.google.com/file/d/0B5qdhG_2Ua58OUpfT3cyMURDaIE/view

On 8 bells the sequences on the front four and back four bells can be interchanged and mixed separately to create a longer continuous series of changes.

Cords and carillon style sequences

Sounding two bells together accidentally during full-circle ringing causes a discordant noise. However, two bells can be struck together as a cord on the chimes to add a degree of harmony to sequences and to music. The sound produced is similar to a carillon. The way to achieve this is to ring two bells two notes apart. It is also more effective to strike the lower bell slightly delayed in time.

Listen here... https://drive.google.com/file/d/0B5qdhG_2Ua58dkFwdIRaTi1tdUE/view



Hymns and Carols

Hymns and carols are perhaps the most appropriate music to play on an eight bell Ellacombe chimes. The music has relatively simple timing, is familiar, and is usually contained within one octave. Those that extend across more than one octave, and/or contain sharps or flats, need to be modified to suit, and in some cases cannot be played successfully

Listen to: ***All Things Bright and Beautiful...***
https://drive.google.com/file/d/0B5qdhG_2Ua58NTBGT20xdDExbFU/view

Listen to: ***The First Noel...***
https://drive.google.com/file/d/0B5qdhG_2Ua58Ty1DcWllb0RIbjQ/view

Listen to: ***the Ellacombe hymn tune...***
<https://drive.google.com/file/d/1JZdrIFmOjPNQIGcPsexi6QM6kPUyOmwUO/view>



Most of the well known hymns and carols have been adapted to play on eight bells but it is amazing what can be played with only five or six bells! See...[Sources of Music](#)

Traditional Secular Music

Some well known traditional music and some children's songs can with modifications also be played with between five and eight bells. However, in general the timing is more difficult than for hymns and carols.

Here is a melody of music played at a Remembrance Day event:
Keep the Home Fires Burning, They shall not grow old, Abide with Me, and The Last Post...



Modern Popular Music

Most popular music has complex timing, is spread over more than one octave and is designed to be accompanied with lyrics. However a few well known pieces of popular music have been adapted and can be performed with practice.

Methods on the chimes

Plain Hunt and other more complex methods are very difficult to play from memory on Ellacombe Chimes, and the tendency is to ring too slowly to be effective when reading the lines from a sheet. A simple alternative is to ring random notes and finish with the tenor bell and then a pause. When chiming there is no reason to adhere a cycle based on the number of bells in the tower, for example on eight bells the cycles can be extended to ten bells with a pause after the tenor. It is easy to perform rapidly, can be repeated many times and is pleasing and very acceptable to those unfamiliar with methods.

Here is a short video demonstrating the technique...



https://www.youtube.com/watch?v=uH6wFvg_JDk&feature=youtu.be

There is a video showing two guys in Camberra, Australia, performing a complex method by ringing four bells each on an eight bell Ellacombe chimes using a script and it demonstrates how difficult this is to do....



<http://www.youtube.com/watch?v=w8hTbFijAOE>

Re-commissioning and preparation

If the Ellacombe Chimes facility has not been used for some time a thorough inspection of the mechanism together with consideration of other factors involved is recommended. A **check list** of the things to consider is available at...

https://drive.google.com/file/d/0B5qdhG_2Ua58TXBnR0ZITHhrb0k/view?usp=sharing

CCCBR has a 9-page Guidance Note entitled: ***Tower Safety and Risk Assessment*** that may be useful at...

www.cccbr.org.uk/wp-content/uploads/2016/03/GN4v9.pdf

and an 8-page ***Guidance on Insurance and Ringers*** at...

www.cccbr.org.uk/wp-content/uploads/2016/03/GN1-2-June-2015.pdf

It is recommended that the music scores are printed boldly on A4 paper, as pulling the ropes moves the whole body and it is easy to lose ones place in the music. For the same reason it is recommended that the rope positions are labelled on the frame with the bell numbers prominently and as big as practicable.

There should be somewhere to stand the music scores in front of or close to the ropes, and it may be worth adding a special shelf to the upper part of frame.

Sources of music

The format used for music scores and call change sequences should be simple, with large print, and designed for either experienced musicians or bellringers or both by using conventional music notation and/or bell numbers. Experienced musicians prefer to use the conventional music notation, whereas many bellringers are unfamiliar with it and prefer to use just the bell numbers, with some form of indication of timing.

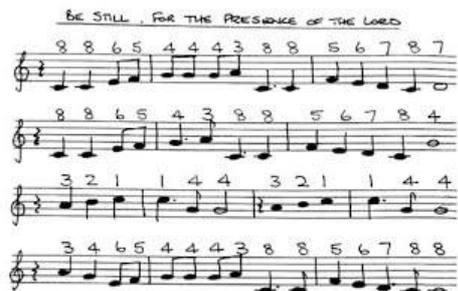
Music transcribed for one tower may not work well in others. In towers with eight bells the pitches are normally spread over an octave using the diatonic scale described in... https://en.wikipedia.org/wiki/Diatonic_scale, but may be in a different key and may have sharps and flats. The pitch of a bell can also change over time caused by wear and flattening by the clapper and hairline cracks.

Music originally composed for organs and pianos with both sharps and flats can be modified but not always, and those that do not sound good are best avoided. A useful source of music scores for 8 and 10 bells could be towers with tubular and hemispherical bells as they have many years experience of playing music.

There does not appear to be a generally accepted standard format. Below are examples that

have been found...

This format has been used at St Peter's Goldhanger for many years...



The music scores in the .PDF files available below were arranged for this 8 bell tower that has a key of A flat. The notes are:

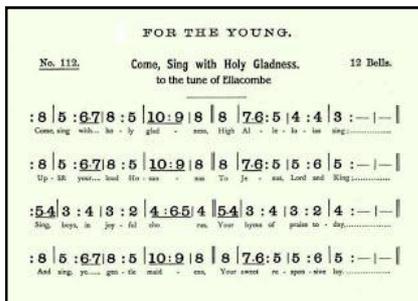
1:Ab 2:G 3:F 4:Eb 5:Db 6:C 7:Bb 8:Ab

These pitches were recorded by Gillett & Johnston in 1951, but as some of the bells date from the 1600s & 1700s the values may not be completely accurate.

Most of the Goldhanger music is available in four landscape PDFs here...

- 41 hymns..... https://drive.google.com/open?id=0B5qdhG_2Ua58REVKcHdhVVNZUWM
- 29 carols..... https://drive.google.com/open?id=0B5qdhG_2Ua58bTk5TE5XMGQ3ZU0
- 27 traditional tunes... https://drive.google.com/open?id=0B5qdhG_2Ua58T2U0WmlXaF82VXc
- 13 popular tunes..... https://drive.google.com/open?id=0B5qdhG_2Ua58bWpQTFY2RWV6NXc

"The Bell Hymn Book" by William Haley in 1889 has 140 tunes set out in a special but somewhat complex musical notation. Here is an example from the book which is the Ellacombe hymn tune...



The first eleven pages of the book (plus the Ellacombe hymn tune) are here...

<https://drive.google.com/open?id=1TVEE1GjieWlptVPASQo3O6zgtWr0YXSI>

"Music for Handbells and Church Bells" is a booklet written by Tony Crabtree in 1979 and reprinted 1984. It has 74 tunes "for playing on 3 to 8 bells". A copy is held in the CCCBR library and is available from Tony at: tony<dot>crabtree<at>talktalk<dot>net . Here is the introduction...

Introduction

Over several years of visiting churches I have been concerned by the number of towers with a set of handbells or a chiming apparatus that is clearly not used. I feel that one of the reasons for this is the scarcity of tunes and hymns that can be played on an octave or less and the lack of published music in this area. This lack of music has often caused problems when I have wanted to play tunes on a set of eight handbells as an alternative to change ringing. Finding carols to play on the Parish Set at Christmas was another problem.

With this in mind I have spent the last six years collecting tunes that can be played on (or can be altered to fit onto) eight or fewer bells. The result is this collection of seventy pieces which I have harmonised within the rather restricted range of notes available. About twenty five of them have had notes altered to enable them to be played on eight bells.

I do not claim to have produced a book of great music but I hope that handbell ringers and tower-bell chimers alike will find it useful. I also hope that some silent bells will ring once more.

here is an example...

ABIDE WITH ME

6	-	6	7	8	-	4	-	3	4	4	5	6	-	-	-
8		8				6		5	7	6	7	8			
6	-	5	4	3	-	4	-	5	7	6	6	4	-	-	-
8		7		7		6		7	8	8	7	8			
6	-	6	7	8	-	4	-	4	5	5	6	7	-	-	-
8		8				6		8	7	8	7	8			
7	-	6	5	6	7	8	5	6	-	7	-	8	-	-	-
		8	7	8				8							

Here are two other examples of music styles from Aintree and Almondsbury towers...

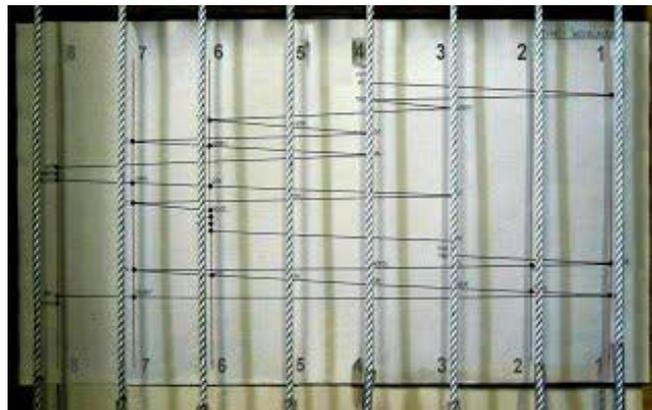
AMAZING GRACE

8	55	353			
4	5	7	8		
8	55	353	431		
3	11	353	4578		
8	55	353	45		

THE FIRST NOWELL.

1 6 7 8 7 6 5 4	2 3 2 1 2 3 4
3 3 2 1 2 3 4 3 2 1 4 5 6	
REPEAT LINES 1,2,3.	
4 6 7 8 7 6 5 4	5 1 2 3 3 4
6 1 2 3 4 3 2 1 4 5 6	BELLS. 1,2,3,4,5,6,7,8.

This example from Keynsham, Bristol is of a hymn tune and is of a style similar to the "blue line" used to describe a full circle method and fits behind the ropes within the chimes frame...



This is an example of *Here Comes the Bride* from St. Mary's Church, Clapham, London...

HERE COMES THE BRIDE

8:5	:55:	:::		
8:4	:65:	:::		
8:5	:31:	:35	7:4	:35:

St Mary's, Clapham, London

<h3>When the Saints</h3> 	<table border="0"> <tr> <td>Spring (Vivaldi)</td> <td>Westminster Chimes</td> <td>Twinkle, Twinkle little star</td> </tr> <tr> <td>6444562</td> <td>3126</td> <td>6 6 2 2 1 1 2</td> </tr> <tr> <td>23 444562</td> <td>3213</td> <td>3 3 4 4 5 5 6</td> </tr> <tr> <td>234 323 45 (repeat)</td> <td>1326</td> <td>2 2 3 3 4 4 5</td> </tr> <tr> <td>42 343 212</td> <td>6213</td> <td>2 2 3 3 4 4 5</td> </tr> <tr> <td>62 343 212</td> <td></td> <td>2 2 3 3 4 4 5</td> </tr> <tr> <td>612 34 565 66</td> <td></td> <td></td> </tr> <tr> <td>62 343 212</td> <td></td> <td></td> </tr> <tr> <td>612 34 565 66</td> <td></td> <td></td> </tr> </table>	Spring (Vivaldi)	Westminster Chimes	Twinkle, Twinkle little star	6444562	3126	6 6 2 2 1 1 2	23 444562	3213	3 3 4 4 5 5 6	234 323 45 (repeat)	1326	2 2 3 3 4 4 5	42 343 212	6213	2 2 3 3 4 4 5	62 343 212		2 2 3 3 4 4 5	612 34 565 66			62 343 212			612 34 565 66		
Spring (Vivaldi)	Westminster Chimes	Twinkle, Twinkle little star																										
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62 343 212		2 2 3 3 4 4 5																										
612 34 565 66																												
62 343 212																												
612 34 565 66																												

Here is an example of the 6- bell St Martin's, Kingsbury Episcopi, Somerset , with two forms of music scores. A document with more samples of their 6-bell music is here...

<https://drive.google.com/file/d/1Y94ozRp92VelxLdO5i4bR2JrKAH1uaT8/view>

Many other towers have their own music recorded in their individual style, however very few examples have been published. A list of some 360 hymns and tunes arranged for chiming is available over 3 pages in the *Chiming tunes list.pdf* at...

https://drive.google.com/file/d/0B5qdhG_2Ua58cm5nekJMLU1uV0E

The listing also identifies suitable occasions for the music. Here is a small sample...

Tune title / first line of hymn	No.	Name of Tune	Bells	Occasion	Hayley	Sunny Association	Goldhanger	Horsfield	Swanage	Crabbie
A Virgin Unspotted		---				Yes				
Abide with me (Eventide)							Yes			Yes
Above the Starry Spheres	49	St Michael	12	Whitsuntide	Yes					
Again the Lord's own day is here	10	Church Triumphant	12	Sunday	Yes					
All Around My Hat							Yes			
All Creatures of our God and King		Laast uns erfreuen				Yes	Yes			
All Creatures of our God and King (A&MR 172 (Easter Song)) (b)									Yes	
All glory, laud and honor	34	St Theodolph	10	The Sunday next before	Yes		Yes			
All hail the power of Jesu's name	105	Miles' Lane	12	General	Yes					
All hail the power of Jesu's name	105	St Leonard	10	General	Yes					
All people that resemble Abel	34	St Theodolph	10	General	Yes		Yes			

Call Change Sequences

During full circle ringing, the well known call change sequences are normally called out from memory by the band conductor. Music scores for these may not be essential for use on the Ellacombe Chimes, but for those not familiar with the sequences it is probably worth having the list for reference. Here is a sample...

Named Rows in Bell Ringing:	6 bells (or on 5 with 6 covering)	8 bells (or on 7 with 8 covering)	10 bells (or on 8 bells with 8,0 cover)	10 bells (or on 9 bells with 0 cover)
Back Hounds / Roll-ups	5 4 3 2 1 6	7 6 5 4 3 2 1 8		9 8 7 6 5 4 3 2 1 0
Bowbells		1 3 2 4 5 7 6 8		
Burdet / Burdette	2 1 3 5 4 6	3 1 2 4 7 5 6 8		
Double Reverse Queens (St Mark's, Worseley)				8 6 4 2 1 3 5 7 9 0
Exploded Tittums (St Mary's Swanage)	3 4 2 5 1 6	4 5 3 6 2 7 1 8		
Hardyke	3 4 1 2 5 6	1 2 5 6 3 4 7 8		

The full list on an A4 page is available at...

https://drive.google.com/file/d/0B5qdhG_2Ua58UnBVQmhuSkFiaHc

A large print A4 landscape version of the most popular sequences is also available at...

https://drive.google.com/file/d/0B5qdhG_2Ua58WmQ4UUJYaTM2aGc

FIVE RINGS DOUBLES					
72 changes - for chiming (Page 11)					
Change no.	1	2	3	4	5
1	2	1	4	3	5
2	2	1	4	5	3
3	2	1	5	4	3
4	2	1	5	3	4
5	2	1	3	5	4
6	2	3	1	4	5
7	3	2	4	1	5
8	3	4	2	5	1
9	4	3	5	2	1
10	4	5	3	1	2
11	5	4	3	1	2
12	5	3	4	1	2
13	3	5	4	1	2
14	3	4	5	1	2
15	4	3	1	5	2
16	4	1	3	2	5
17	1	4	2	3	5
18	1	4	2	5	3
19	4	1	5	2	3
20	4	1	5	3	2

The sample music above is of a special “method” of chiming on five bells, produced by St Peter and Holy Cross Church, Wherwell for the 2012 Olympics. It is a rendering of Howard Skempton’s Five Ring Doubles that was performed throughout the country at the start of the Olympics. A 4-page full sequence can be downloaded at...

https://drive.google.com/file/d/0B5qdhG_2Ua58ZU10VFc2TENZME0

Playing techniques

Chiming is generally much quieter than full circle ringing, so one needs to ensure that the bells can reasonably be heard by the potential audience.

It is important to hold and pull the rope in the optimum position to transfer the maximum energy via the hammer to the bell with minimum effort. The majority of frames are designed to be pulled horizontally from the middle, not downwards. Some of the [YouTube videos](#) at the end of this webpage demonstrate this. The Revd. Ellacombe’s drawing of a frame at the top of this page shows the ropes being pulled out using both hands.

A sharp "jerky" movement is necessary to avoid the hammer resting on the bell and causing chatter (See the [Risks](#) section). However, some towers are fitted with trigger-action hammers to overcome this.

It is recommended that rounds and call changes be mastered before attempting to play tunes. Unless one is an experienced musician, it is also suggested that if you cannot recall a tune “in the head” it is best not to attempt to play it, even if the music score is readily to hand. It is also recommended that tunes played with single notes are mastered before attempting any two note harmony. The easiest tunes to play are those where the timing is reasonably uniform throughout, and fortunately this is probably the well know hymns.

Most beginners tend to play tunes too slowly. It takes a finite time to move the hammers, so it is best to use both hands to increase speed and this takes practice. It will help to pull odd-numbered ropes with one hand and even numbers with the other, and it is best to always keep one hand above the other. Thus, ringing Rounds from right to left: R, L, R, L, R, L, R, L with the right hand being just above the left hand. It may also help beginners to annotate R - L on music scores, or use different colours.

If visiting a tower for the first time, remembering to check whether the heaviest bell is on the left or the right. It is also worth seeking the opinion on timing from someone who has listened from outside. Even a traditional hymn played too slowly may not be recognisable by others. In 1889 William Haley wrote in *The Bell Hymn Book* the following paragraph...

ON COUNTING TIME,

The time in which a tune should be played is undoubtedly to many the greatest difficulty. The performer may be able to strike the bells in the most approved manner, and read the figures or notes without the slightest hesitation, but unless the bells are struck at the proper time, the melody will be imperfect, perhaps unrecognisable even with the most familiar tunes.

It helps listeners identify tunes if the verses are repeated two or three times. Harmony can then be added to the repeat verses.

Practice is essential to achieve good timing, rhythm and speed. Using the actual bells for practicing may annoy the neighbours. Silent practice can be achieved by reading the bell

numbers while just hooking your fingers behind the ropes (i.e. not actually pulling). Eventually, the hands will go to the correct ropes automatically while the eyes are concentrating on sight-reading the music. Practicing on a piano or xylophone is also a very good way to gain initial experience and try out new material without disturbing others. They are also useful for practicing two note cords with both hands. A low cost solution is...

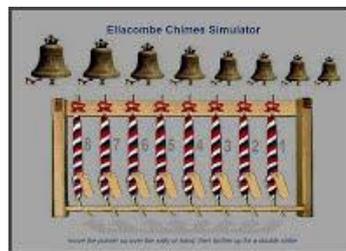


Ellacombe Chimes Simulator

Since the 1970s many forms of bell simulators have been produced to help train bell ringers and develop their skills, particularly in ringing full circle Methods. Useful synopsis of these is given in...

www.jaharrison.me.uk/Ringing/Simulators and <https://ccbr.org.uk/services/ict/simulator-reviews/>

However, no mention of the use simulators for chiming has been found on these or other websites. Consequently a simulator specifically for the Ellacombe Chimes has been developed and is available at the link here...



<http://www.churchside1.plus.com/Goldhanger-past/EllacombeSimulator.htm>

The simulator uses the “mouse-over” facility of more recent PC and laptop browsers. It is known to work with Google Chrome, Firefox and Explorer, however by its nature it does not function with tablets. Simply move the mouse pointer over a sally to chime a bell. The bells sounds used in the simulator are those of St Peter’s Church Goldhanger.

The Simulator is also available in a .zip file to download from here, and use locally...

https://drive.google.com/file/d/0B5qdhG_2Ua58NFFsdUxDZ0t6OVk

At the beginning of a session

At the beginning of a session traditional hammers have to be raised and the ropes adjusted for optimum hammer movement. If the ropes are too tight, the hammers don't move far enough and the bells are too quiet, too loose and it is uncomfortable, takes more effort to ring and ringing tends to be too slow. One has to pull hard enough to get the hammer to strike the bell properly but without letting the hammer chatter on the bell, i.e. stay in contact with the bell and possibly damaging it (See **Risks**). Releasing the rope immediately before the actual contact is desirable but takes considerable practice. The hammers are also more likely to chatter on the bells if the ropes are too slack. It is notable that Haley’s *Bell Hymn Book* refers to: "a stroke of five or six inches is considered ample". The movement of ropes and shape of the rope "triangles" when pulled should all be approximately the same for optimum timing and comfort.

Where trigger-action hammers are fitted, the ropes still need to be tensioned at the beginning of a session. The amount of movement available to the hammer lever is limited by a fixed bolt, so hammer chatter can't arise, but you need to adjust your strength of pull so as to fling the hammer up towards the bell hard enough for it to strike properly. The optimum rope “triangles” are the same as for traditional hammers.

Ropes made from natural fibres stretch and shrink significantly with temperature and humidity changes, so it is usually necessary to adjust each rope at the beginning of a session. The effect of temperature and humidity is not so noticeable with full circle ropes as they are not

fixed at the lower end. When adjusting the ropes of traditional hammer at before at the start of a session it is good practice to allow the hammer to just touch the bell and make very little sound without chatter, otherwise others may be concerned or irritated by the unusual noise. There is a short video demonstrating setting up...



www.YouTube.com/DCxgokNeBvY

When adjusting rope “triangles” for trigger-action hammers one allows the lever to be pulled down to the fixed bolt stop.

At the end a session

If full circle ringing takes place in the tower it is essential that the Ellacombe hammers are lowered at the end of a session. (see **Risks**). There should be some obvious indication that the chimes hammers and ropes have been left in the correct and safe position for full circle ringing. It is good practice to always inspect the position of the hammers before the bells are rung up for full-circle ringing. There should be a similar verification of the down attitude of bells before a chiming session starts.

Concert Performances

Ellacombe Chimes have been included in concerts that have been performed both inside and outside churches, although some difficulties have to be overcome...

- When chimed, the bells can be too quiet to be heard inside the church at the front
- The speed of sound can result in a significant delay in the sound of bells reaching the front of the church
- The conductor and members of the orchestra may not be able to be with, or see, the chimes ringer

However these difficulties can largely be overcome with technology...

As part of a Masters degree course in orchestral composition, composer Anne Gregson wrote a dissertation about the use of church bells combined with other instruments. She concluded that it would be difficult with change ringing but could be achieved where Ellacombe Chimes were fitted.

In her degree portfolio she presented several compositions written for the Ellacombe Chimes and ensemble of flute, harmonium and violin. The pieces were performed in St Mary's churchyard at Bitton, where the Revd. Ellacombe originally developed the mechanism. The same pieces were performed later at a concert inside St John the Evangelist church in Bath using a microphone in the ringing chamber to relay the sound of the bells in to the main body of the church. Part of the performance can be heard at...

<https://soundcloud.com/mr-punchs-studio/minimal-chimes-live>

Based on her experience Anne made several recommendations in her dissertation, here is a summary:

- Eight bells make up an octave matching the capabilities of the ensemble instruments
- It is likely that the ensemble need a key revision to match the tuning of the bells
- It would be difficult to include brass instruments
- A microphone in the ringing chamber or tower with speakers in the church is very beneficial
- The ringer and ensemble need a means to communicate and co-ordinate such as by using mobile phones
- Once a signal that the ensemble are ready is given it is best that the chimes ringer takes the lead

There is more about Anne's work, and contact details at...

www.annegregson.co.uk

Solo performances using the Ellacombe Chimes have also been given in church concerts in the past, notably at Goldhanger. In this situation the main problem is the sound level of the bells at the front of the church, which can be solved with a microphone and a speaker.

Well know orchestral conductor, *Charles Hazlewood* worked with the BBC to made a one hour television programme entitled: "Come Bell Ringing". He set about seeing if the church bells in the centre of Cambridge could be used to make music. As part of the programme he organised a temporary conversion of the bells in St. Edwards church in Cambridge so that the they could be chimed by six ringers and play part of a tune. The technique they used was very similar to the second method in the **Alternative ways to Chime** section. The programme was first broadcast in 2011 and the one hour programme is available on YouTube at...

www.youtube.com/watch?v=leTh9XfMFU8

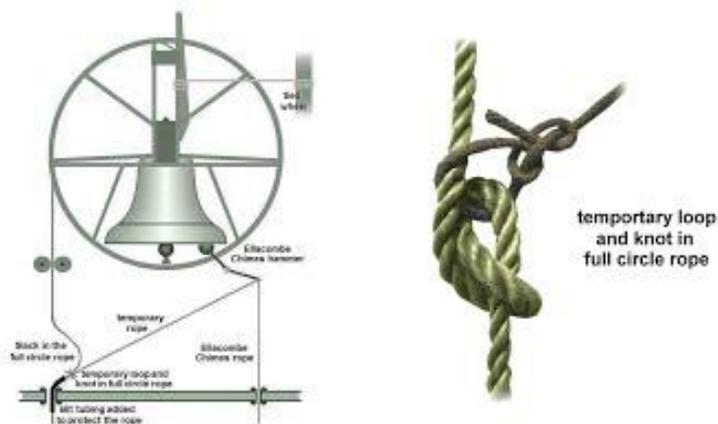
the relevant section involving chiming is 36-minutes into the video

Alternative methods of chiming

Two alternative methods of chiming with a band or team of ringers are described here, one using existing Ellacombe Chimes hammers which is based on trials at St Peters Goldhanger and the experiences of Dedham Parish Church in Essex. The other is based on experience in other towers in the UK and is very similar. The techniques may not be practical in all towers and are not without some small risks associated with Clapper Chatter. However they could be useful in some towers in these circumstances:

1. When full circle ringing is no longer permitted due to structural issues.
2. When there are delays in refurbishing the full circle ringing mechanism due to approvals or lack of funds.
3. Where there are insufficient ringers for full circle ringing, but inexperienced volunteers are available.
4. Where one person playing the chimes in an isolated location is considered an unattractive and lonely assignment, yet there is an enthusiastic local band available willing to continue ringing as a team.
5. By making temporary changes to introduce visitors and children to bellringing in a safer environment.
6. Where there is an enthusiastic local team of handbell ringers keen to put their skills to use with the tower bells.

This diagram shows a suggested configuration of the ropes where Ellacombe Chimes hammers exist...

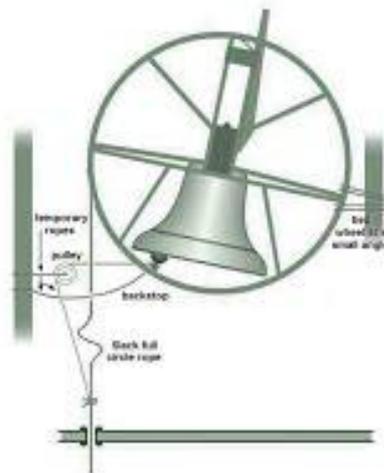


The recommended steps to make the changes are:

1. If the Ellacombe Chimes levers work, use it to raise the hammers to the normal chiming positions.

2. Make a temporary safe back-stop with a short piece of rope.
3. Tie all the bells in the down position in such a way that does not to put strain on the wheel.
4. Tie one end of the temporary rope to the Ellacombe hammer lever.
5. Pull up a few inches of the full circle rope at floor level to create sufficient slack.
6. Create a loop in the full circle rope, tie the temporary rope through it and adjust the length.
7. Slide a length of slit plastic tubing over the full circle rope to protect it where it passes through the floor.
8. Test each bell from the ringing chamber and adjust the ropes lengths as needed.

The diagram below shows a suggested configuration for use when Ellacombe Chimes hammers do not exist and is designed to minimize the risk of Clapper Chatter...



1. Tie all the bells in the down position at a slight angle in such a way that does not to put strain on the wheel.
2. Fix a pulley to a firm location as shown in the diagram.
3. Pull up a few inches of the full circle rope at floor level to create sufficient slack.
4. Create a loop in the full circle rope, tie the temporary rope through it.
5. Feed the rope around the pulley, loop it around the clapper flight and adjust the length.
6. Add the "backstop" rope to limit the clapper movement to only several inches.
7. Test each bell from the ringing chamber and adjust the ropes lengths as needed.

The diagrams above necessarily show the configuration of ropes in one plain only. When one considers the distances and angles involved in all three dimensions, the techniques may not be practical in some towers, and it may be necessary to fit additional pulleys to cope with the angles involved and give greater protection to the bearings and ropes. If excessive effort is needed to move the ropes from the ringing chamber then this probably means that too much strain is being put on the bearings, levers and ropes.

As with all chiming methods, it is essential that the ropes are adjusted so that a too forceful blow cannot be exerted on a bell, and all the ringers must to be made aware of the need to avoid potentially risky and unnecessary chatter. (see **Risks**).

A CofE faculty is not normally needed for temporary changes, such as re-routing bell ropes.

The effect and benefit of the technique can be seen in the video of visitors trying their hand at Dedham Parish Church in Essex.

The video is at... www.youtube.com/watch?v=Aniat5vLucs
the two relevant clips are at 3 and 7 minutes into the video

The technique can also be seen in a video of a temporary arrangement at St Edwards Church, Cambridge, organised by BBC conductor Charles Hazlewood. The video is an hour long, but a 5 minute clip 36 minutes into the video is worth watching.

The video is at... <https://www.youtube.com/watch?v=leTh9XfMFU8>

Understanding and Coping with Clapper Chatter

Excessive chatter leading to a bell cracking is said to be a particular risk associated with the practice of tying the ropes directly to the clappers. This is sometimes strangely referred to as "Clocking", a term that goes back the early Big Ben experiences. Here are some recent extracts relating it...

On page 18 of a 2002 document at...

<https://www.canterburydiocese.org/media/forms/churchbuildings/bellscodofpractice.pdf>

"Hammers and ropes should be arranged to minimize the chance of a bell becoming damaged as a result of excessive impact, or of damping by holding the hammer against the bell immediately after impact. The practice of connecting ropes to the flights of ringing clappers, known as 'clocking', is strongly deprecated."

On page 317 of *Hertfordshire Bellfounders* by Joyce Dodds in 2003...

Clocking – The rope is tied round the clapper flight and the clapper is pulled to strike the soundbow without the bell moving. The momentary holding of the clapper against the soundbow has cracked many a bell.
Safe clocking is where the rope is tied to a loop welded high on the clapper stem and a pull produces an impulse to the clapper sufficient to strike the soundbow and swing back.

On page 1 of a 2012 document at...

http://www.chichester.anglican.org/media/documents/document/2012/09/DAC_Bells.pdf

"Bells may be cracked by: ... Clocking - sounding the bell by a rope looped around the flight of the clapper. This should be stopped. The bellhangers now offer trigger-action hammers, for stationary chiming, which prevent the hammer being held in contact with the bell after it has sounded. "

On a webpage at...

<http://www.southcreake.org/history/bells/seven-centuries-of-bell-ringing>

"Its massive timbers, reminiscent of those of a wooden warship or an ancient mill, are rough hewn and rugged but no longer strong enough to support the bells if restored to full circle ringing....

...What to do about the bells has been on the PCC agenda for years but it was the firm, but quite proper, advice from our Diocesan Bells Adviser, Peter Trent, to cease "clocking" the treble that finally galvanized us. "Clocking" is the bad practice of chiming a bell by tying a rope to the end of the clapper, to its flight, and pulling the clapper against the inside of the bell. If done carelessly, this can cause the bell to crack as the clapper may be held against the bell after striking, rather than immediately falling away, and interfere with its natural vibration. In November 2014 an Ellacombe Chiming Apparatus was installed by The Whitechapel Bell Foundry."

The practice seems to have little to do with clocks and the phenomenon is more appropriately called Clapper or Hammer Chatter. It can never be completely avoided, for example in Full Circle Ringing, at the end of a session when the bells are stood in the up position, the clapper comes to rest on the bell and chattering takes place.

It was suggested that the crack in first Big Ben was caused by excessive hammer chatter. Here is an extract from *Big Ben: the Great Clock and the Bells at the Palace of Westminster*, By Chris McKay, published in 2010...

1857

Big Ben Cracked

Big Ben continued to be sounded for the entertainment of the public, but late in October 1857 it cracked. The crack, which was directly opposite where the bell was struck with the 12 cwt hammer, started at the lip, went through the sound bow and extended 40 inches up the waist of the bell...

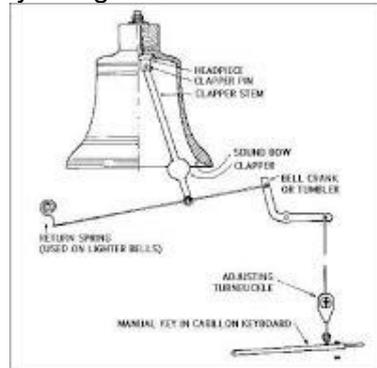
... An engineer, Charles May, reported that he had been present at the experiments and had heard the bell crack very distinctly; he mentioned it at the time that the blow was struck and the fact was soon afterwards verified. Other reports said that, *'The huge external hammer was not always recovered by the recoiling apparatus and it chattered on the bell.'*

A hammer chattering on a bell, certainly a very large one as was used in the instance, is certain to damage a bell.

The book also records that the hammer weight and bell thickness were also said to be to partly to blame. A second Big Ben was cast and that also cracked and this was also attributed to an overweight hammer. The term "clocking" probably originates from these incidents.

For more on the history of Big Ben see... https://en.wikipedia.org/wiki/Big_Ben#Great_Bell

The risk of clapper or hammer chatter leading to cracking is also associated with excessive intensity of strikes and an inappropriate weight of the clapper or hammer relative to the weight of the bell, the latter of which today's ringers can have no influence over.



Many Carillons around the world appear to use a similar method of striking conventional bells using an internal clapper pulled horizontally with a wire or rope as shown in this diagram which appears on two websites at...

http://www.carillon-berlin.de/carillon_desc-eng.html

and at... <http://www.gcna.org/mechanism.html>

The effectiveness of this method is most likely due to the presents of the return spring to reduce chatter (on the left of the diagram) plus a restricted clapper movement, limiting the scale of the strike.

Ellacombe Chimes appear to suffer less from the problem, most likely because gravity pulls the hammer vertically away from the bell immediate after the strike. However it is incumbent on all chimers to releases the rope quickly to minimise chatter (see **Risks**). It also has to be said that some towers in the UK have chimed for many years with ropes tied around the clappers apparently without problems, although the configuration of their ropes is not known.

A search of CCCBR Library for "clocking" in the past revealed that the subject was very controversial in the late 1800s and the various published correspondence included the letter that follows from the Revd. H T Ellacombe:

BELLS AND BELL RINGING.

‘Clocking’ Church Bells.

Sir,—I quite agree with my friend, Mr. Wigram, in his clever explanation of the great injury arising from ‘clocking’; it is a continued source of profit to the bell-founder. I believe the mischief is often caused by boys, who are allowed to do the sexton’s work in the matter, and they will often try how heavy a blow they can give, by swinging the clapper beyond all reason, and then pulling it with all their might; and then the woeful result is not to be wondered at, for in that way the clapper strikes a severer blow than it does in the case of legitimate tolling or ringing when the bell is in full swing. No doubt, as Mr. Wigram says, it is possible so to manage a clocked clapper that it shall not strike an unfair blow; but though I by no means wish to encourage ‘clocking,’ it may be interesting to your readers to know, what perhaps some will be surprised to hear, that all the carillon bells in Belgium are clocked, from the smallest to the largest. I have lately visited nearly all the towers there which possess carillons; all the bells are rigidly fixed, and for the manual or key-board the clapper of each bell is connected by a wire fastened to the tail or flange of the clapper; and so closely are they adjusted, that I could not put my little finger between the clapper and the side of the largest bell of the carillon at Antwerp—Gabriel—which is 6 ft. 4 in. in diameter. So that the distance through which the clapper passes is so small, and the blow so gentle, that no damage can be done: it is just the same with all the other bells. For the carillon tunes played by the clock-barrel there are hammers, which strike on the outside of all the bells in the usual way. But there is another source of mischief connected with ‘clocking’ by the ringing-rope—that the clapper is pulled all athwart, and the rope gets chafed over the sides of the ground-truck, which thereby gets worn, and the clapper-hangings get loose and injured: therefore my advice is, to inhibit ‘clocking’ altogether.

Clyst St. George.

H. T. ELLACOMBE.

It is significant that the Revd. Ellacombe noted the concern associated with “Clocking” was not just related to chatter, but also the “severer blow” by “boys allowed to do the Sexton’s work” and, “the clapper pulled all athwart” causing excessive wear to ropes and bearings.

An investigation into the phenomena of Chapper Chatter was undertaken at St Peters Church Goldhanger some years ago. It has only more recently been learnt that excessive Chapper Chatter can lead to a cracked bell and the reasons for undertaking the study at the time were...

The Ellacombe Chimes produce a quite different sound from the full circle ringing. The chimes are quieter but have much longer ring decay times and are generally produce a less harsh sound.

When the bells were being put up for full circle ringing, harshness was very noticeable when the bells came to rest in the up position.

In comparison with the sounds at other towers, it was very noticeable that some bells of a similar size produce quite different sounds - some much harsher and more dead sounding.

During full circle ringing, for a proportion of the bell wheel’s 380 degree rotation, immediately after the clapper has struck the bell, the clapper rests in contact with the bell resulting in two effects: The clapper momentarily chatters and some harshness is generated. Due to this phase energy is lost, resulting in a shorter ring decay and a more dead sounding bell.

There were two approaches to the investigation:

1) A study the relationship between the clappers and bells, and experiments with methods of raising the clapper away from the bell surface. During these experiments it became apparent that the audible effect of clapper chatter is easily detectable by most experienced ringers, and therefore relatively straightforward to identify the bells that might be at risk.

2) Consultations with local bell experts and the study of relevant published material on the subject – very little was found, however the following short paper was offered by Adrian Semken, Technical Advisor to Essex Association of Change Ringers. Adrian sadly passed away in 2015. There is no mention of a risk of a bell cracking associated with chatter in the paper...

BELL CLAPPER BUFFERING AND CLAPPER RELEASE MECHANISMS

The concept of holding a clapper away from the sound bow of a bell after the clapper has struck the bell is in no way a new concept. The reason for having the clapper held away from the bell is to permit free vibration of the bell whereas a clapper normally falls back onto the bell following the strike and subsequent bounce thus acting as a damper. An analogy would be the difference between playing a piano with and without the use of the sustain peddle. The distinction between clapper buffering and clapper release mechanisms is as follows.

Clapper buffers are devices that are in some way attached to the clapper and hold the clapper ball clear of the bell whilst the buffer remains in contact with the bell. Buffer material is usually a hard rubber although woods including *lignum vitae* have been tried with more or less success. The material used can significantly affect the resultant tone of the bell and some have been found to have a very short effective life and/or be affected by humidity.

Clapper release mechanisms consist of a mechanical device that physically holds the clapper clear of the bell immediately following the strike thus allowing the completely open bell to sound. The system employed in hand bells is one version of this type of system.

It would seem that a considerable interest in buffering clappers occurred in the 1880's with a number of materials being evaluated although it seems that many of the results were not recorded. Although there are some buffer systems in use today many have fallen by the wayside through lack of regular maintenance or the sourcing and employment of suitably robust materials. The tenor clapper, and only the tenor, at both Thorrington and North Weald are known to be buffered, rubber being the buffering material in both cases although the buffers are significantly different.

From about 1850 a number of clapper release mechanisms were tried some being the subject of a patent. It would seem that the major problem was actually obtaining materials that were sufficiently robust to withstand the stresses to which they were subjected.

Both of these systems permit the bell to sound for a longer period than is the case with a conventional clapper but this can be a problem especially when the bells are being rung to changes. For accurate change ringing it is important **for** the ringers to be able to hear the actual instant the bells strikes and if there is a prolonged period of hum there is so much "noise" that it becomes difficult to hear the bell.

Buffering has been used in an attempt to make a poor quality bell, or a weak one, sound better than probably it really is but there is a risk that by permitting a bell to sound for longer discordant harmonics are also heard for longer.

Apart from the tonal quality of a bell it is also essential to consider the internal acoustic qualities of the tower structure. The internal design as well as the material from which the tower is constructed and the number and material of internal floors all affect how a bell sounds in the ringing chamber where the bells are heard by the most critical listeners, the ringers themselves.

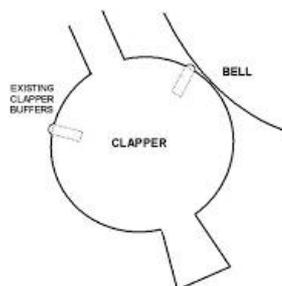
Externally the perceived sound volume and quality are significantly influenced by the height of the sound exit louvers in relation to the level of the bells and the material from which the louvers themselves are constructed. A spire, especially one constructed from stone, will have a significant and sometimes quite dramatic effect on both the internal and external sound as perceived by the listener.

Adding any type of device to a clapper will modify the weight and thus the dynamics of the clapper. If the centre of percussion is altered significantly from that designed by the bell hanger there is an increased risk of premature clapper failure.

Any work undertaken to clappers or, for that matter, any other bell fittings which is beyond the scope of routine maintenance and which alters any item(s) in a way that cannot be easily reversed will be subject to faculty procedures.

A. G. Semken,

Hon. Technical Advisor, Essex Association of Change Ringers, 7th. June 2008



It was soon established that several methods of reducing clapper chatter have been proposed in the past, and one of the methods had in fact been implemented on some of the bells at Goldhanger, probably 50 years ago. A small soft metal pad, probably lead, was inserted near

the worn striking areas on some clappers. These can be felt by hand, but are not visible when the bells are in the down position and the clappers are vertical.

However, the devices are worn and flattened and are only effective on one bell. This discovery meant that the problem has been recognised in the past and was significantly severe to justify a solution.



As replacing these worn parts would involve removing the clappers and possibly drilling out the old metal this solution was not pursued. The preferred alternative was to devise a new method that could be easily fitted onto the clappers of the bells that now suffered the worst effects. During the study it became apparent that a small block of readily available hard rubber strategically mounted on the clapper shaft provided a simple, effective solution, albeit not perhaps not the most permanent one...

A summary of Clapper Chatter

- The subject of chatter has been controversial for over 100 years, the term probably starting at the time of the Big Ben incidents.
- Full circle ringing and Ellacombe Chiming seem to be the least controversial.
- The practice of tying ropes to clappers, (see **Risks**), has been used in some churches for many years.
- Once the problem is known about, bell chatter from any cause is audible, easy to identify and can be avoided.
- When full circle ringing is no longer permitted, other methods are readily available to keep the bells ringing.
- If in doubt, professional advice is available.

Bells out of tune

In comparison with full circle ringing, chimes sequences are slower, the striking is more spaced and there is no Doppler shift effect, so the sound of individual bells is more obvious and some bells may seem out of tune. Also many well known tunes and hymns were originally composed with sharps and flats (accidentals) and these are not normally available so some compromises are needed to enable these tunes to be performed.

Ringers with experience of other musical instruments are more likely to notice imperfections and question whether some tunes should be played or if the bells are out of tune. The tuning and tone of bells is a complex subject and in the past was very subjective. Today there is a well documented scientific understanding of the subject...

What determines the quality of a peal of bells? at... www.hibberts.co.uk/peals.htm

How bells make their sound at... www.hibberts.co.uk/ears.htm

The sound of bells (several articles) at... www.keltektrust.org.uk/indexsoundofbells.html

Any attempt to re-tune an ancient bell is likely to be fraught with difficulty and expense, so is unlikely to be justified. The alternatives are:

- Chime sequences as fast as possible
- Strike two-note cords for bells that sound a little off key
- Avoid playing tunes that do not sound right

Most bellringers recognise that the public listening outside enjoy hearing bells ringing out for services and special occasions and this hugely outweighs any imperfections that may be detected.

Selected YouTube videos *(not in a particular order)*

*the links embedded with the images below do not function in this PDF version
please use the separate links below the image*



<https://www.youtube.com/watch?v=ldJhNJNgm6Q>
Changes at...
St Peter and Holy Cross
Church, Wherwell, Hampshire



http://www.youtube.com/watch?v=L0Q_6_mm4YM
"Tell out my Soul" on...
10 tubulars at St James'
Riddings, Derbyshire



<http://www.youtube.com/watch?v=SMTi085Rmpo>
Rounds at...
St Peter the Apostle,
Leamington Spa



<http://www.youtube.com/watch?v=w8hTbFijAOE>
a Method at...
St John's Church, Camberra,
Australia



<http://www.youtube.com/watch?v=KJA1cEF6f0k0>
Rounds & sequences at...
Summerhill Church
Sydney



<http://www.youtube.com/watch?v=7MugF9X9y4Y>
Queens & Kings from...
the belfry at St. Giles
Cheddington



<http://www.youtube.com/watch?v=wxhQyU250l>
Rounds & sequences on eight
tubular bells at Maentwrog,
Gwynedd, Wales



<http://www.youtube.com/watch?v=mK0EoLFDgLo>
"Ode to Joy" on...
six bells at Great Barton in
Suffolk



<http://www.youtube.com/watch?v=LBT4BDYdb1c>
St Mary's,
Swanage, Dorset



<http://www.youtube.com/watch?v=7YrV04IRC4w>
St. Andrew's Church,
Hong Kong



<http://www.youtube.com/watch?v=Aniat5vLucs>
visitors chiming at Dedham in
Suffolk.
see... 3-mins & 7-mins



<http://www.youtube.com/watch?v=DK7gR5DaZIA>
Eight bell Clavier, St Mary's,
Stannington



<https://youtu.be/DCxgokNeBvY>
Setting up the Ellacombe frame
at St Peter's, Goldhanger



https://youtu.be/uh6wFvg_JDk
Chiming a "pseudo-method" at
St Peter's, Goldhanger



<https://www.youtube.com/watch?v=leTh9XfMFU8>
the BBC & Charles Hazlewood
re-rope a tower for
chiming. see...
36-mins in



<https://www.youtube.com/watch?v=2Q4OotJdAM0>
Two Ellacombe Chimes in
Norfolk

A selection from Laurie Alexander's YouTube collection (Loz Alex) videoed in Australia and New Zealand...



<http://www.youtube.com/watch?v=BgUdeQrIT4c>
Happy Birthday at
St Johns, Darlinghurst



<https://www.youtube.com/watch?v=zDB9mPZP2A>
Auld Lang Syne
at St Johns, Darlinghurst



<https://www.youtube.com/watch?v=rDWQuUEzKfKo>
All Things Bright And
Beautiful at St Andrews,
Summer Hill



<https://www.youtube.com/watch?v=BN1eijeZRgc>
a duet played on
Dunedin tubular bells



<https://www.youtube.com/watch?v=fx5q4IZUas>
Easter Hymn: Ebenezer at St Johns, Darlinghurst



https://www.youtube.com/watch?v=oFk5smNc_9U
Easter Hymn: Jesus has risen at St Johns, Darlinghurst



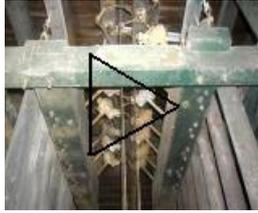
<https://www.youtube.com/watch?v=d6g7N8X4PuA>
Mine eyes have seen the coming of the Lord



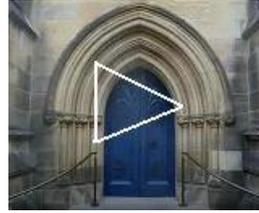
<https://www.youtube.com/watch?v=h3sm6nF5Aiw>
O little town of Bethlehem at St Johns, Darlinghurst



<https://www.youtube.com/watch?v=Cjwxshh3Ws>
melody at St.Clement's Marrickville Sydney



<https://www.youtube.com/watch?v=XFA6ZnkXQNY>
Dear Lord and Father of all mankind



https://www.youtube.com/watch?v=ZN-Y_ZSYF9E
Guide me O thou great Jehovah



<https://www.youtube.com/watch?v=aZ14hzi5nY>
a duet of changes for a wedding at Darlinghurst

Ellacombe hymn tune - played on 6, 8 and 9 bells...



<https://www.youtube.com/watch?v=bqASbdK6L2E>
the Ellacombe hymn tune on 6 at Darlinghurst, Sydney



<https://www.youtube.com/watch?v=vR7N3Tg9xNA>
the Ellacombe hymn tune on 8 at Goldhanger, UK



<https://www.youtube.com/watch?v=7YgHqXa391M>
the Ellacombe hymn tune on 9 at Darlinghurst, Sydney



https://www.youtube.com/watch?v=GBpUEos6d_E
the Ellacombe hymn tune on 9 at Parramatta, Sydney

Unusual and bizarre Videos of Ellacombe Chimes...



<https://www.youtube.com/watch?v=5KD3BUrS93E>
Hornsby Water Clock near Sydney, Australia



<https://www.youtube.com/watch?v=HpYgK3HGqxc>
Firing bells at St Thomas Cathedral Kuching, Malaysia

This 17-bell water clock is in a shopping Mall at Hornsby, near Sydney, Australia. It was designed and built in 1993 by USA architect Victor Cusack.

His inspiration for the chimes came from Harringtons Tubular Bells of Coventry and an Ellacombe chimes rack he had seen in a church in Haywoods Heath in Sussex, UK.

It is a recent recognition of the enduring benefit of combining Ellacombe Chimes with Harringtons Tubular Bells.

See... https://en.wikipedia.org/wiki/Hornsby_Water_Clock

"Firing" is a traditional technique used in full circle ringing for special celebrations, which is when all bells are rung at once for a few strokes.

However, in most ancient bell towers the effort used to "fire" all the bells using an Ellacombe Chimes could well pull the fame off the wall.

Kuching Cathedral is a modern structure and clearly capable of taking this strain. See the entry in our **Risks** section

The 2021 worldwide celebrations *

On the 26th June 2021, a worldwide celebration took place for the 200th anniversary of the Revd Henry Thomas Ellacombe's invention of the device.

Links to over 100 video recordings made on that occasion are at...

www.churchside1.plus.com/EllacombeWorldwideVideos.htm

many more videos are available by entering Ellacombe Chimes (etc) directly into YouTube

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Our Aims

We aim is to build up various resources for chimers which so far do not appear to be available in the UK. We are initially undertaking the work using this website. Our aims are:

- o *Create a national listing of active chiming towers, incl. Ellacombe, tubular, hemispherical, etc.;*
- o *Maintain a library of music and sequences suitable for chiming;*
- o *Identify people with the knowledge and experience to train chimers to an appropriate level of competency;*
- o *Identify suitable aspirations for chimers, in order to help them grow their skills and repertoires;*
- o *Stimulate networking amongst chimers to overcome the sense of isolation currently felt by many chimers and increase opportunities to visit other local towers and chime at each other's towers on a regular basis;*
- o *Create and maintain a contact list for chimers, by e-mail group or by social media;*
- o *Create opportunities for chimers to visit other towers for demonstrations, tutorials, festivals, etc.;*
- o *Offer support for towers needing to make the difficult transition from full circle ringing to chiming for whatever reason especially if bell ringing would otherwise be lost;*
- o *Enhance communication between "tune" chimers and "pseudo-methods" chimers;*
- o *Encourage support for chimers in County Associations;*
- o *Encourage recognition by CCCBR of the contribution made by chiming where no alternative exists;*
- o *Help to preserve a significant piece of UK bell ringing history and the memory of its founder;*

The authors

This webpage was compiled and is maintained by:

David Newman - St Peter's Church, Goldhanger, Essex

Webpages about the history of St. Peter's and its bells are at...

<http://www.churchside1.plus.com/Goldhanger-past/Bells.htm>

<http://www.churchside1.plus.com/Goldhanger-past/St-Peters.htm>

with considerable help from:

Mike Shelley - St. Mary's Church, Clapham, London

Documents about St Mary's bells available on-line are...

<https://drive.google.com/file/d/1Z8KAEeoh6UKkSm-eXGtN9Rx2zLYYU8uI>

https://drive.google.com/file/d/1_oAfgO7KaedL7D-MZuKGM-a7ITizGa79

Mike published an article in the *Ringing World* magazine in October 2020 entitled:

The Mythical Dangers of Chiming which available is at...

https://drive.google.com/file/d/1_bLEV6roDuzhPjyacYuptDLLIZs_t3ww/view

and in January 2021 an article entitled:

Time to Correct History which is available at...

https://drive.google.com/file/d/1-fEix4ROh6_S_uij-ahvy2Y51QFK3J3M/view

and includes contributions gratefully received from:

Tony Crabtree - St Andrew's Church, Shrivenham

David Etchells - St Peter and Holy Cross Church, Wherwell, Hampshire

Dr. Victoria Gibson - St. George's Church, Chorley, Lancashire

The Parish Church ringers - Dedham, Essex

George Colbourne - Keynsham Parish Church, Nr Bristol

Anne Gregson - Composer, Bradford on Avon, Nr Bath

Bitton Parish History Group, Nr Bristol

Chris Richmond - North Norfolk, UK

Laurie Alexander - St John's Church, Darlinghurst, Sydney, Australia

Nick Frost, St Martin's, Kingsbury Episcopi, Somerset

Contacting us

If you would like to make contact with us for: advice; to make a contribution to this webpage, such as adding your name and tower to our lists; tell us about the music you have or other resources; any hints and tips you would wish to share; or for any other reason please email:

david<at>**churchside1**<dot>**plus**<dot>**com**

and/or **mikeshelley64**<at>**gmail**<dot>**com**

or please simply email us to offer support for the cause

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