

Church of St Peter, Calow, Chesterfield
Inspection of the Bell installation – 14th December 2006

At the request of Mr. Tom Sanders of Smith and Roper (Architects), an inspection of the bell installation was completed by:

John McCartney – Bells adviser to the Derby Diocesan Advisory Committee.
and
Mike Banks – Bell Consultant to The Derby Diocesan Association of Church
Bellringers.

The tower houses a carillon of eight bells hung 'dead' in a steel fabricated frame at three levels which are sounded by internal hammers operated from a keyboard located in the clock room situated below the bell chamber.

The present arrangement was installed in 1946 By John Taylor (Bellfounders) utilising three original bells dating from 1887 together with five new bells to form a chime of eight. At this time re-tuning was carried out to give a full octave in the key of C. At the same time manual tolling hammers were fitted to bells 6 and 7 together with ropes and pulleys to permit manual tolling from the entrance porch, currently only one of these is still in use.

Additionally a clock hammer was arranged to strike on the tenor bell (No. 8) this strikes the hours and half hours and is fully operational.

Before going on to describe the detailed condition of the installation it is worth commenting as follows:

It is evident from the wear on the bells and the striking hammers that following installation the bells were regularly chimed for some years indeed the music stand on the keyboard is evidence that a great variety of music was written for the 'bells'. The present condition indicates that the bells have not been chimed for many years, no maintenance has been carried out; the installation has been totally neglected and is in danger of becoming derelict.

The churchwarden Mr. G Orme who admitted us to the church for the inspection indicated that he had never heard the bells being chimed and that the subject of the bells had not been discussed at any PCC meeting that he had attended.

Whilst this report will make recommendations for the work required to restore the installation and to protect this valuable resource for future generations, nothing will happen without the commitment of the PCC.

Clock Room

The clock room, which houses the clock and the carillon keyboard, is situated above the entrance porch and is accessed by a fixed stair ladder leading to a trapdoor. The clock is in full working order and has obviously been well maintained.

The clock case and the ladder leading to the bell chamber show attack by woodworm and it is quite likely that the floor has been similarly attacked but this could not be confirmed because of the dirt and debris that covered the floor.

The carillon keyboard remains in working condition although it is in need of cleaning, lubrication and adjustment.

To prevent further deterioration it is recommended that the clock case, ladder and floor be cleaned and be given a generous coat of a propriety woodworm/ preservative treatment.

The ladder leading to the bell chamber above is loose and needs to be fixed at top and bottom.

Bell Chamber

Access to the bell chamber is via a timber trapdoor, which is showing evidence of rot and needs to be replaced.

The floor is covered in dirt and bird delivered debris including at least one dead bird and the condition of the floor must be suspect since it is obvious that the whole chamber is regularly soaked by wind driven rain entering through the four louvre windows.

It is suspected that evidence of rot in the floor timbers will be revealed following removal of the debris and some replacement may be required before treatment with wood preservative.

The mesh bird protection at the South-facing window has disintegrated and needs to be replaced and the timber frames at all four windows needs to be secured and treated.

Protection against wind driven rain can be provided by overlaying the mesh with 'Galebreaker', which is a tough PVC coated woven polyester sheet perforated with small closely spaced holes which provide adequate ventilation but do not allow the passage of water. Sound transmission through the louvres is unaffected. 'Galebreaker' has been used successfully in this application in many churches throughout Derbyshire and beyond.

The openings at the top of the spire should be similarly protected to prevent the entry of birds and rain.

The timber beams spanning the bell chamber beneath the bells formed bell 'pits' to support the original bells, which were hung for full circle ringing before the conversion to a carillon. These need to be treated with preservative and will provide a safe ladder platform for access to the inside of the spire by the stone masons charged with repointing.

Bell Frame

The bell frame is fabricated from steel channel and angle to support the bells on three levels. It is severely corroded and the build up of rust has caused the failure of one of the bolts securing the topmost channel. Despite the corrosion the structural integrity of the frame is more than adequate to support the bells and being hung 'dead' there are no dynamic loads to be resisted. The fixings of the frame to the tower walls are secure.

To arrest the corrosion it is recommended that the frame be thoroughly descaled using angle grinders fitted with cup wire brushes and then painted with red oxide primer followed by undercoat and gloss paint. The failed bolt requires to be replaced.

Bells

The eight bells are all cast by John Taylor their sizes, weights and date of casting are listed below:

Bell No.	Diameter Ins.	Weight cwt – qtr – lb	Date	
1	16	0 – 3 – 14	1946)
2	17 5/8	1 – 0 – 5	1946) Upper level.
3	18 7/8	1 – 1 – 21	1946)
4	21 5/8	1 – 3 – 20	1946) Middle level.
5	23 5/8	2 – 1 – 22	1946)
6	24	2 – 3 – 12	1887)
7	27	4 – 0 – 2	1887) Lower level.
8	30	5 – 0 – 17	1887)

All of the bells are securely attached to the frame and are crack free. The wear due to contact with the striking hammers is moderate however if the installation is to be restored consideration should be given to having the bells rotated 180 degrees so presenting an unworn face to the striking hammers.

All the striking hammers exhibit wear due to contact with the bells and should be re faced, descaled and painted following inspection of the pivot bearings for excessive wear.

Carillon Mechanism

The striking hammers are actuated by rods rising vertically from the keyboard to connect with levers attached to a series of horizontal layshafts mounted in ball bearing housings attached to the frame. The shafts also feature levers to pull the hammers into contact with the bells via short steel cables. To ensure that after striking, the hammers are brought out of contact with the bells the layshafts feature levers fitted with adjustable counter weights for bells 3 through 8.

On bells 1&2 secondary cables from the hammers attached to clock type springs mounted on the frame to retract the hammers. On bell 2 the spring is broken and needs replacement.

The layshaft assembly requires descaling, painting, lubrication and adjustment.

All of the recommended work on the bells and the carillon mechanism should be entrusted to professional bell hangers. A list of companies who would quote for the required work is included at the end of this report.

General

Repainting work on the interior of the steeple should be completed before work commences on the frame, bells and carillon mechanism.

Plastic sheeting should be used to prevent dust getting onto the bell installation and boards should be installed on the top of the frame to avoid damage from any heavy objects that could be accidentally dropped.

Ladders to access the spire should be positioned on the opposite side to the carillon mechanism to avoid damage that may result from transporting materials up the ladders.

Summary

Recommendations are as follows:

The clock room and the bell chamber need to be cleaned of all debris to permit full inspection of the woodwork. Any rotten timber should be replaced and all the wood treated.

The louvre windows and the spire openings should be secured against bird and rain entry.

The frame should be descaled and painted.

A bell hanging company should be engaged to restore the bell installation and a contract for yearly maintenance should be set up.

The recommendations in this report assume that the PCC wish to bring the bells back into full use and this requires a significant investment of time by those who agree to be the 'bell ringers'.

An alternative route that could be considered is to convert the installation to chiming by electro magnetic hammers. These could be arranged to be controlled by an electronic unit, which could be programmed to ring changes or music as required at the touch of a button.

The bell hangers listed below would be able to quote for the conversion and it may be a similar cost to the restoration of the existing manual installation.

Bell Hangers:

Taylor Eayre & Smith Ltd
The John Taylor Bell Foundry
Freehold Street
Loughborough
Leicestershire

Tel: 01509 212241

Hayward Mills Associates
Unit 1
Palin Street
Radford
Nottingham
NG7 5AD

Tel: 0115 9788388

Nicholson Engineering Ltd
Walton
27 Woodmead road
Lyme Regis
Dorset
DT7 3AB

Tel: 01308 422264

Galebreaker can be obtained from:

Mr. John Cater
5 Shady Grove
Hilton
Derbyshire
DE65 5SX

Tel: 01283 732239 Supplied from a roll 1.8m wide at £ 15.65/m.

Report compiled by John McCartney

Agreed by Mike Banks

Advice given in good faith but no liability accepted.