

Derby Diocesan Association of Church Bellringers Consultant's Report	Report DDACB 10/05
Inspection of Bell Installation at the Church of St. James the Great Idridgehay	Issue Date 14/10/05

1.0 Introduction

Mr R.D. Parkin requested the inspection on behalf of the PCC. Bell Consultants Mike Banks and Robin Lyon carried out the inspection on 29th. September 2005.

2.0 General (figure 3)

The single bell is housed in a tower at the North East corner of the church which has a broach spire. There are four spire lights near the top of the spire, four large louvered openings, at bell chamber level, to each aspect near the top of the main body of the tower and a further two louvred windows on the North and East aspects at a lower level. Although all the openings appeared to be well protected by plastic mesh, fitted internally, there were signs of bird ingress. The tower appears to be of sound stone construction with no obvious signs of structural weakness. The single bell, hung for full circle ringing, is now only chimed. This is carried out from the vestry which is situated immediately below the intermediate room.

3.0 Intermediate room (figure 2)

This is reached by an external door which is kept padlocked. A spiral staircase (18 steps) leads to a tall, square, unlit room, Natural light enters through the louvred windows on the North and East aspects. The quantity of natural light actually entering the room through these windows is diminished by the accumulation of nesting material and bird debris on the ledges. There is also an accumulation of dirt and sundry items on the wooden floor and on the stone spiral staircase. The cleaning up of the whole area should be made the focus of a working party. There appears to be an electric supply to the room and the installation of a double fluorescent light should be seriously considered. This extra illumination would greatly assist in the cleaning of the area. The floor is of wood construction with a trapdoor neatly inset in a central position which is immediately over the vestry. The chiming rope hangs in the North West corner and passes through a single rope guide before passing through the floor into the vestry. The ceiling is of substantial wooden construction with the bell chamber floor being supported on seven joists running North - South. Access to the bell chamber is by a free standing wooden ladder, which although of sound construction, was not secured at either end.

4.0 Bell Chamber (figure 1)

The bell chamber is square in section and well lit by natural light. It is thought unlikely that anybody would require access to the area in the dark and the installation of artificial light is of low priority.

There is a clearance of about 400mm between the floor and bell which hangs above the access hatch. Although not impeding entry to the bell chamber care should be taken to avoid head contact with the lip of the bell. The trapdoor was in the chamber but had obviously not been used for a some time.

The area has no artificial light but has good natural daylight from the louvres on each aspect. Each louvre was well protected from bird ingress by plastic mesh which appears to have been fitted several years ago. It was noted, however, that two of the slate slats in the South louvre and two in the East louvre were in danger of sliding out onto the roof of the church.

In the wooden floor there are signs of rot in the North West corner. The louvres and the floor would benefit from a good sweeping.

Special attention should be given to the area where the bell frame and wooden support beams meet the stonework. The chamber was dry and there were no signs of water ingress despite the hard rain that had fallen the previous day.

5.0 Bell Frame (see Figures 1 & 3)

The bell is supported on two wooden beams running North - South supported on stone corbels at each end. Cross beams are fitted running East- West at either end. The rigidity of the frame is further enhanced, on each side, by wooden support beams, keyed into the angle where the floor meets the wall at one end and spaced apart by a distance piece fitted under the main beam. There was no sign of woodworm or rot in any part of the frame.

6.0 The Bell and fittings

The bell, originally hung for full circle ringing, is mounted on plain bearings. Details taken from "The Church Bells of Derbyshire" by Pat Halls and George Dawson state that the bell was cast in 1854 by J. Warner. The weight being unknown. The bell diameter was measured during our inspection and found to be 28 inches (711mm).

The bell with its original canons (cast in loops on top of the bell) is fixed to the wooden headstock by metal straps and nuts. There are also two through bolts near each end of the headstock which give added strength to the assembly. Although the headstock itself is cracked the fittings were more than adequate to take the dead weight of the bell for chiming but NOT for full circle ringing. All the fittings, although corroded were structurally sound.

The plain bearings appeared to be in good condition as the bell would swing quite freely when pushed by hand.

The bell is fitted with a metal stay which, although in need of wire brushing and painting, was sound.

The metal slider although seized in one position when we arrived, was easily freed and ran easily in its guide.

On viewing the inside of the bell it was apparent that very little full circle ringing had taken place. There was hardly any wear on the strike faces of the bell (where the clapper strikes the bell during full circle ringing) but there were signs of wear over a 90 degree arc where the clapper had been pulled sideways when chiming. This wear was acceptable.

The clapper, of wrought iron construction, showed minimal wear at the impact point and was connected to the cast in crown staple by a metal strap. It is

understood that this has been fitted by local labour. The chiming rope was fitted round the clapper and then over a pulley and down through the intermediate room to the vestry. One of the dangers of chiming a bell is the danger of cracking the bell if the clapper remains in contact with the strike face of the bell after the initial impact. Bell metal is very brittle and the bell needs to return to its normal 'silent' state without any 'foreign' object (e.g. clapper) being in contact with it. (see 7.1 under Recommendations)

The wheel (over which the rope normally runs for full circle ringing) showed severe signs of woodworm and rot and several of the cheek segments were falling away.

7.0 Recommendations

7.1 See figures 4A and 4B

By altering the pulley position as shown in Figure 4A the possibility of cracking the bell by chiming is reduced significantly. The pulley should be positioned so that when you actually pull on the rope the momentum of the clapper will carry it to hit the bell but then it will fall away from the surface and allow the bell to return to its normal 'silent' state. The 250 mm is, as stated, an approximate dimension and the exact position should be found by trial and error.

If the bell was cracked it would have to be removed from the tower for a repair to be undertaken and this would be a difficult and expensive undertaking.

7.2 Fit a double fluorescent fitting in the intermediate room.

7.3 The debris should be removed from the bell chamber taking special care to remove that which is lodged between the wooden frame and the stonework.

7.4 Repair rotted section of bell chamber floor.

7.5 All the metalwork in the bell chamber should be wire brushed, bolts checked for tightness, and then painted with red oxide paint followed by an undercoat and topcoat.

7.6 The wooden frame should be given a good wire brushing and then treated with Cuprinol wood preservative or creosote to maintain the timbers in good condition.

7.7 The wheel should be treated using a preservative suitable for woodworm. As the bell is not being rung full circle there is no need to replace any of the parts. The main aim is to arrest any further deterioration.

7.8 Clean the intermediate room and spiral staircase of any accumulated rubbish. Although all the louvres appear to be well covered there has definitely been some bird ingress over the years.

7.9 Secure the free standing wooden ladder

7.10 Do not attempt to ring the bell full circle.

8.0 Conclusions

The bell may be chimed for some time to come once the above recommendations have been carried out.

NB Advice given free of charge and in good faith but no liability accepted.

R.W. Lyon
Bell Consultant to the Derby Diocesan Association of Church Bellringers

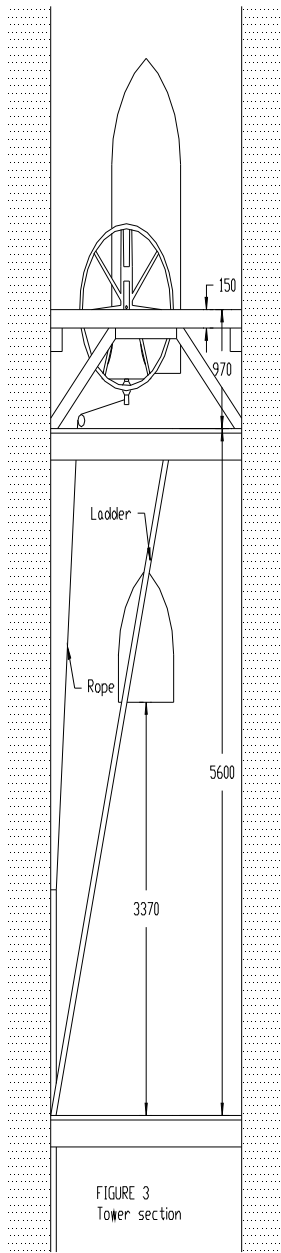


FIGURE 3
Tower section

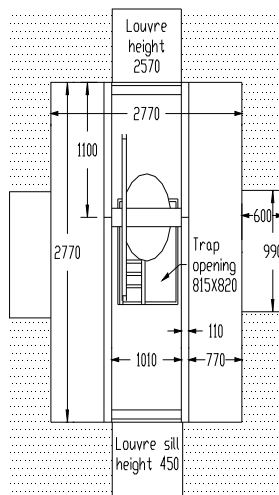


FIGURE 1
Bell Chamber

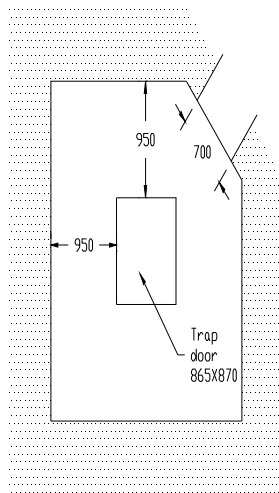


FIGURE 2
Intermediate room

