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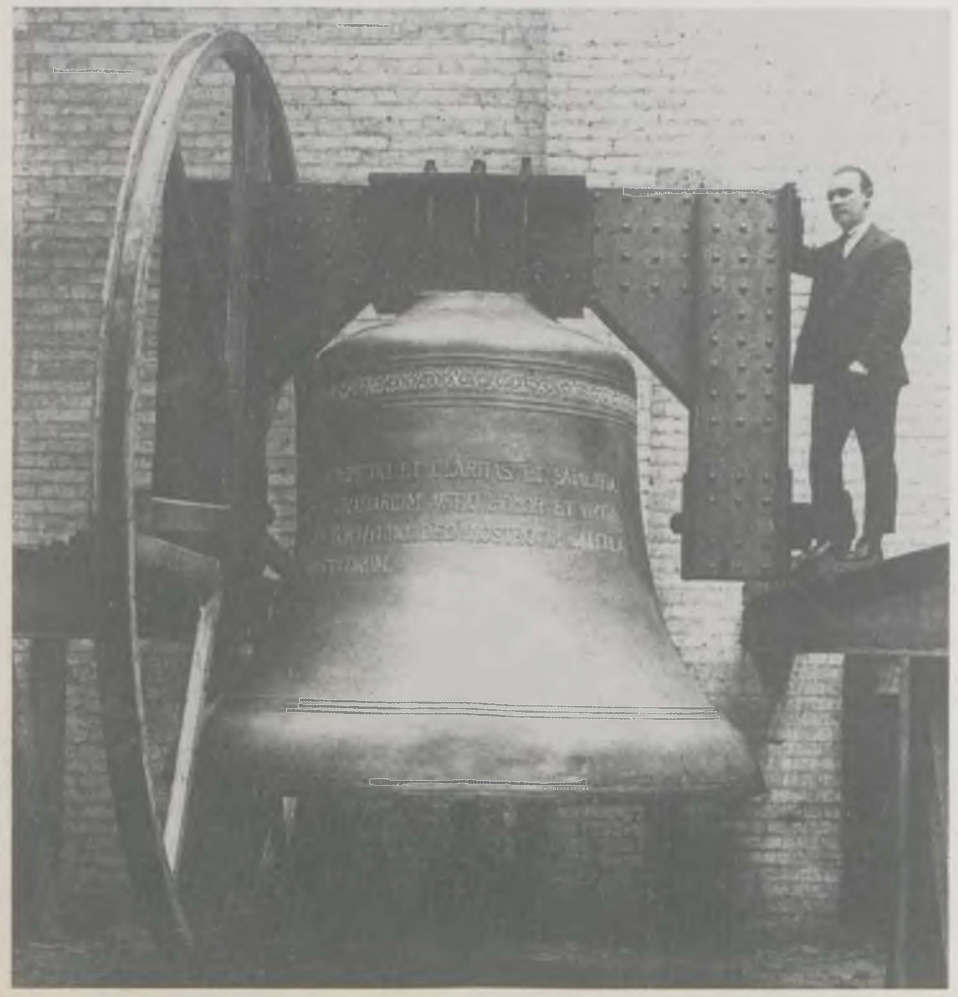
"A very large bell with a full deep tone"

by David L. Cawley

One of the delights (and liabilities) of being a Diocesan Bell Adviser is the collection of paperwork which is the inevitable fruit of our endeavours. Another one is the spin-off outside the Anglican diocese, whether it be a Catholic Cathedral or a Municipal Monstrosity; or indeed so grand a creation as the Great Tower of the University of Bristol. Grand indeed, and the file on it is, through the kindness of the University Records Library and of Messrs. John Taylor (Bellfounders) Limited, one of the fattest in my possession. There is a reason, and here is its story.

The University College of Bristol was founded in 1874, and lived a fairly spartan life in its early days. Its earliest buildings were grandly designed by Charles Hanson, and included a Jacobean style tower-entrance with oriel windows on two floors above the entrance door. Funds ran out and the finished structures reflected the poverty of the establishment. More was to follow; by 1894 it was still a battle between the (Liberal) University College and the (Tory) Technical Institute. It was tobacco and chocolate which were to make a break in favour of University College, in the form of the Wills and Fry families. In 1908, the Blind Asylum at the top of Park Street became vacant; the site was purchased by Henry Overton Wills together with a promise of £100,000 as an endowment for a University, incorporating the University College. In true Edwardian style, money heaped its own reward; H. O. Wills became Chancellor of the University of Bristol which received its Charter in 1909. His family were to be no mere figureheads and announced in 1912 their intention of building a Memorial Building to him. Moreover, Sir William Wills had taken care in his reconstruction of Blagdon Church to order personally from Mears & Stainbank a new ring of bells.



A special frame was erected in Taylor's works for testing the bell – Pryce Taylor is on guard!

A hill of twelve towers

In the later years of the 19th century, a rising star was to be seen on the Bristol architectural scene. His name was George Oatley, and it was with difficulty that he ever entered practice at all, family circumstances militating against it. That is a story in itself. He was taken on in the offices of Henry Crisp with whom he became a partner. There are scores of institutional buildings from this practice, mostly in a warm, plum-coloured local stone and clearly influenced by the Arts and Crafts Movement.

The Wills family had their own architect, Frank who designed the City Museum and Art Gallery, all now within the University complex. Frank Wills was no Gothicist, and it was Oatley's design which captured the imagination. There one would have been able to see "A Camelot of twelve towers" from the top of the Royal Fort in the east to the Wills Memorial Building Tower dominating Park Street. On Royal Fort, the Physics Building Tower indeed rises like a castle keep; in Woodlands Road, the Arrowsmith Tower (for all the world looking as if its sole purpose was to hold a juicy ring of bells); and on top of Park Street, the Wills Tower itself, 40 feet square and 215 feet high – but no more. World War I nearly put paid to the whole venture, but the Wills family and their determined architect saw to it that at least these were built; and in the Wills Tower they gave the city an icon. Not only that, but from the very outset it was determined that there should be a Voice. How well they succeeded is demonstrated that in Bristol as in the case of Westminster's "Big Ben", the Bell it contains has given its name to the tower – GREAT GEORGE.

Like "Great Tom"

At the time of the conception of this Arthurian paradise, the largest and finest bell in the country was "Great Paul" cast by John Taylor & Co in 1881. It still is the largest and considering that it has never been tuned it is a very fine sounding bell. Its nearest relatives in size were Big Ben of Westminster (1858) whose cracked and raucous voice is a national institution to-day; and the old "Great Peter" of York (10-tons, 1845) was considered a national mediocrity. Approximately, these three bells sounded the notes E-flat, E and F old Concert Pitch; none had been tuned, and only "Great Paul" could be swung. (Great Peter having defied the efforts of founders, bell-hangers and of ringers to get it to swing was at the time sounded by an outside hammer). In 1882 Taylors had produced the (second) Manchester Town Hall 'Great Abel' which was again untuned and, two tons heavier than its predecessor, hung 'dead'. It remains an impressive bell. A lighter clock bell of 6-tons had gone to the amazing clock tower of Birmingham University in 1908, the year before Bristol received its Charter, a fact

(continued overleaf)

GREAT GEORGE – *continued*

which surely cannot have escaped the Wills family or George Oatley. This bell had been harmonically tuned, the first purpose-made great clock bell to be so treated. Down in the west, the huge tower of Downside Abbey had been taking shape, and for it a large bell was required, strangely it came secondhand. Cast by Taylor in 1900 to be a new Bourdon for Beverley Minster, its reign there was abruptly terminated by what appears to have been Canon Nolloth's campanological megalomania. When the largely new ring of ten was installed there in 1901, the big baby in the other tower was found to be inconsistent with the pitch of the new ring (41-1-20 in C) and was displaced by the magnificent 'Great John', which at 7-tons in G could serve as a bass accompaniment to the ring and a suitable hour bell for the chimes. The bell which was removed was harmonically retuned, and despatched to Downside Abbey; rechristened 'Great Bede' at 5½-tons in A it was for many years an attraction at ground level, and Oatley must have seen it there.

For all the glories of Bede, John and Birmingham University and their older and larger brethren at Manchester and St Paul's; and despite the imperfections of Ben and of Peter, probably the best known bells in the country before the days of wireless were the three Toms, at St. Paul's (5-2-1-22); Lincoln (5-8-0-0) and Oxford (now known as 6-4-2-0, but then reckoned to be between 7 and 8 tons). Legend and antiquity rather than musical excellence provide the reason for this. Of the three, the Lincoln bell alone could be swung (it has since been hung dead; while the Oxford bell can now be safely swung). It was on the basis of scant knowledge of their particulars that the first of many letters went out in respect of a Great Bell for the new University of Bristol:

OATLEY & LAWRENCE, 25 Orchard Street,
Architects BRISTOL
George H. Oatley, F.R.I.B.A.
G. C. Lawrence, A.R.I.B.A Jan 30th 1913

Dear Sirs,

Would you kindly say at about what price you could supply a very large bell with an unusually full deep tone, like "Tom" of Oxford or Lincoln. Also what would be the size & weight of such a bell?

Yours truly,
Oatley & Lawrence

Messrs Taylor & Co.,
Bell Founders,
Loughborough

The Bellfounders in their reply left their options open:

"We thank you for your letter . . . the diameter of Great Tom of Christ Church Oxford is 7ft, and we think, its weight is not known exactly but it is supposed to be nearly 6 tons. Great Tom of Lincoln is 6ft 10 ins in diameter and weighs about 5½-tons.

We ensure that a bell of similar size and weight from our foundry shall be of purer and more dignified tone even than those and we beg to refer you to similar bells we have cast of recent years, namely "Great Bede" of Downside Abbey – "Great John" of Beverley Minster and the hour bells of Birmingham New University – Manchester Town Hall – and Newcastle-on-Tyne Cathedral. The largest bell we have cast is "Great Paul" in St Paul's Cathedral, London, but this is a huge bell and weighs nearly 17-tons.

Relative to the cost of the bell, the charge for the bell itself would be at the rate of £154 per ton, nett here. This does not include fittings. How would it be proposed to hang the bell? Would it be hung stationary with the clapper or the hammer to be lifted to strike the bell?"

Having told them that Mr. Taylor "personally" was available for consultation, Taylors left the carrot dangling. It dangled till September when the following arrived in Orchard Street from Mr. A. A. Hughes, of Messrs. Mears & Stainbank.

Dear Sir,

Having heard that you may be requiring Bells for Bristol University, we venture to send you a copy of our catalogue and to respectfully offer you our services.

We have just recast the Tenor for Bitton near Bristol and have in hand the recasting of Butcombe bells. We should be pleased to call upon you if you would care for us to do so, and give you any information.

We are now busy on a large set of bells for the British Memorial Tower, Buenos Aires, the largest bell to weigh over 5 tons. The peal at Blagdon Church was cast by us to the order of Sir William & Henry Wills.

Mr. Hughes, had certainly kept the best argument till last – Oatley could not lightly disregard the fact that his patrons had gone to Mears for their bells. On 30th October he wrote for their estimate for a bell of 7 to 8 tons "the hanging to be so that the bell could be swung". The result was the following estimate which was prefixed with the assurance that an 8-ton bell "would give a magnificent sound. There would be nothing to compare with it in the West of England":

It would be 8' 0" diameter at the mouth and the cost of the bell alone would be say 160 Cwt @ £17.18.8 per cwt £1269

Fittings for swinging it, together with the necessary framework and erecting would add some £280

making a total cost of £1550. The bell would be made of the finest bell-metal, and of the best possible tone.

They further stated that "Mr. Hughes will be prepared to come and confer with you at any time". A P.S. reminded the architect of the Buenos Ayres bells, of "A very fine 52 cwt Bell for Westminster R.C. Cathedral for the Duchess of Norfolk. This has been pronounced the finest bell of it weight in London". The architects' acknowledgement was optimistic about the tower ("it will take something like four years to build"); and honest about estimates – quotations would "probably be required from various firms". Six months later, Oatley received an invitation to Whitechapel "re your enquiry last Octr." as the Buenos Ayres bells were on view and "will not be shipped for some little time" and the founders were also "tuning a fine new set of ten bells for Brighton Parish Church and making a peal of Musical Hand Bells consisting of 175 in number, so a visit would prove interesting just at present". The suggestion was well received, Oatley deciding to visit Whitechapel on 23rd March. It was to be ten years and a Great War before they corresponded again.

A visitor from Loughborough

While the correspondence was passing from Orchard Street to Whitechapel, even as the letters were on the desk (perhaps Oatley was motivated by them) another visitor was coming; J. W. Taylor was hastening on 27th September to Bristol to discuss a matter "not immediately pressing" concerning a bell to weigh between 7 and 8 tons. What was required was a guarantee as to the tone of the bell; the approval "of such musical expert as our clients may care to engage"; the provision of supports and nature of the stresses, and finally whether the ringing might be "done by machinery – say an electric motor". Oatley's internal memo describes features which are familiar to those who visit "Great George" to-day:

The weight of the bell and stress of the swing would be on a solid bearing if the bell beams are at the bottom of the belfry floor. It would have the advantage of the weight of the octagon above; the stress of swing, Mr Taylor says, is equal to about three times the weight of the bell.

The bell would be in the best position for sound as the mouth of it when swinging would be just above the cills of the belfry windows.

Mr Taylor saw no objection to the bell beams going diagonally so as to run into the angles of the tower. I pointed out that they might be of ferro-concrete and he saw no objection to this. . .

I explained that there would be a concrete floor to the belfry. He saw no objection to the belfry windows having no louvres as the weather would not hurt the bell and the ball bearings could be protected.

He did not think that (a motor) could be worked. The bell would be pulled by rope in the ordinary way. The rope would be of sufficient length if it came down into the uppermost of the two large rooms in the tower. It would take two men to actuate it. He said that friction would not be materially increased by passing the rope over pulleys to bring it down against the walls. It might be locked up in a closet . . .

As an expert in bell tones, Mr Taylor mentioned Mr W. W. Starmer, organist of St Mark's, Tunbridge Wells.

By December of 1913, having received Drawings of a fairly conventional layout involving the frame, Oatley came up with a revolutionary suggestion:

The bottom girder of the bellframe would rest upon the solid ferro-concrete floor of the Belfry. We have been wondering if it would not be as well to construct the bellframe in ferro-concrete and incorporate it with the floor. One advantage of this would be that there would be no iron to oxidise; the material would be practically indestructible by the elements.

To this Taylor replied:

For some time past we have been considering the question of Ferro concrete for bellframes in towers which are suitable for it. For a peal of bells I think there will be difficulty but for a large single bell I do not think there will be any difficulty at all. We do not see that there can be any objection at all to ferro concrete but rather that it has every advantage.

Thus satisfied, and despite the outbreak of war, Oatley continued his plans. As can be seen,

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GREAT GEORGE – *continued from page 78*

he was much enamoured of the use of "ferro-concrete", used extensively in the new buildings, cladding them with appropriate dressed stone so that none of the reinforced concrete was used as an exposed feature. A quarter of a century later, A. A. Hughes and Sir Gilbert Scott were to show how reinforced concrete could be used for a bellframe, but the shattering acoustic properties of the Liverpool frame sections and the reflective surfaces of the tower were to justify Taylor's caution. But Oatley's initiative was a bold one; it is not often one has to hang an eight ton bell, let along for swinging. So, by 1915, Oatley was at last ready to ask for an estimate. He told Taylor:

> You may assume that Ferro concrete frames will be provided in accordance with the correspondence we have already had with you.

Taylor obliged on 21st January, carefully noting that construction of the frame was to be carried out by the builder, and the hoisting by the Contractor; further, there had been a reduction in metal prices to £149 per ton:

> For one new bell cast of the purest metal and most musical tone, with true harmonics, to weigh about seven tons, and to be charged for at the actual nett weight at the price of £140. 0s. 0d. per ton – present price – £980 0 0
>
> New fittings for the bell consisting of oak wheel, iron headstock bored and fitted with steel gudgeons, self-aligning bearings of the latest type, wrought iron clapper with independent staple bolt, rope of Italian hemp with worsted salley, roller, stay, slider and the requisite smithwork, all of our best make throughout, fitted to the bell complete. Also a well fitted chiming hammer of suitable weight, with steel spring, shank and rope &c. Also hanging the bell in its frame with its fittings, leaving it in the best ringing order £185 0 0
>
> Carriage of the bell and all materials and tools between our Works and the University £29 0 0
>
> £1194 0 0
>
> Inscriptions to order at sixpence per letter

The reduction in metal; prices was greatly appreciated by the architects who were "arranging that the Ground Floor of the Tower is designed so that the bell can be hoisted directly into the position which it is intended to occupy". Further, another feature familiar to those who have seen (and rung) the bell:

> The bell rope is not intended to pass vertically down through any concrete floors, but it is suggested that the bell frame shall be placed diagonally in the tower. The rope would be taken into one of the angle Turrets and would pass over a pulley there and drop vertically into the Ringing Chamber which is in the base of the Turret.

It will be noted that the bell was to be hung for full circle ringing (unlike Great Paul or Great John), and J. W. Taylor had made the point of horizontal thrusts of three times the weight of the bell at the outset. Oatley seemed far more concerned with cosmetics than with the ease of restoration. He was obliged to point out that:

> You give no guarantee as to tone. In any bell our clients decide to provide they are certain to require that the tone shall be guaranteed and that a person of some expert experience shall be mutually agreed upon as a referee in case of a difference of opinion arising as to the quality of the tone.

Taylors were not slow in telling him:

> Relative to the tone of the bell, this, as we have said, we guarantee shall be the fullest, purest and most musical possible, and we shall be very pleased to offer every facility to the musical expert, as you suggest, to test the bell thoroughly before it leaves our Works.

They also allowed themselves some superlatives (reinforced by those of Canon Elsee of St. George, Bolton, and the Head Master of Rugby School on the 3½-ton bell lately installed there). The War was biting, and metal had advanced £10 a ton. Still Oatley was dissatisfied about 'referees' and the Foundry gave the names of Canon Nolloth, of Beverley ("who assisted the late Lord Grimthorpe in the last edition of his book 'Clocks, Watches and Bells'") and Mr. W. W. Starmer ("who has gone more deeply we should think into the study of bells and bell tones than has ever any other professional musician".) Further, metal had advanced another £6 per ton, metal merchants quoting only by wire within the hour. The result of the last piece of news was predictable, the architect feeling his clients would only allow a provisional sum large enough to include a good bell, tenders being obtained "nearer the time". Even in September 1919 he could give no better reply that:

> We are not without hope that by the time the Tower reaches the belfry stage (probably some two years hence) it may be possible to have the Bell.

Post-war gloom

The Tower was about 40ft. out of the ground (a hundred more to go before the belfry) when the next correspondence started. The initiative was Taylor's, and on 14th February 1921 they were able to write to Oatley with the welcome news that "the metal markets are extremely favourable . . . it would be a very wise plan to secure the requisite metals even if the bell is not to be erected for some time". They also sent leaflets about the great carillons lately erected by them at Cobh and in Rotterdam.

George Oatley asked for a revised quotation, feeling "somewhat inclined in view of the metal markets to put the matter before our Clients". The reply gives an interesting inside into metal prices, which at the time of their January 1915 estimate was £90 per ton, whereas they rocketed to £200 per ton in 1920. Now however:

> We can buy the metals at £100 per ton, which is a ridiculously low figure. We think that is inconceivable that prices of these metals should go appreciably lower, and we are convinced that they are bound to advance again very considerably when trade begins to move towards more normal conditions.

The experience of the Loughborough War Memorial Carillon Committee had led it to order Taylors to buy the 21-tons of metal required and "it was this decision which led to our approaching you on the matter of this large bell." In all, therefore, the price of the bell would be £240 per ton, inclusive of moulding, casting, tuning and finishing. The fittings would be proportionately more expensive because of the cost of labour – "but there is some indication that wages will become lower". Taylor's further suggestions prompted an enquiry in an unusual quarter – the foundry of John Warner & Sons Ltd., who were just recovering from the local indignity of casting the notorious bells of Mangotsfield. They were nevertheless prepared to quote on their impressive Royal Warrant letter heading:

> Dear Sirs,
>
> With further reference to your esteemed inquiry for a single bell to be fixed at Bristol, we have herewith much pleasure to append the cost of supplying and fixing the undermentioned bells to be swung, complete with our Patent, Vertical, Cantilever, Steel Bellframe, roller bearings, oak wheel, fitted with two ropes and pulleys, clapper and staple, fixed complete in Bristol:
>
> | Weight of Bell | £ | s | d |
> |---|---|---|---|
> | 3 tons | 1,394 | 0 | 0 |
> | 4 tons | 2,012 | 0 | 0 |
> | 5 tons | 2,720 | 0 | 0 |
> | 6 tons | 3,080 | 0 | 0 |
> | 7 tons | 3,440 | 0 | 0 |
>
> You will notice that we have based our estimate on the assumption that the bell would be required to swing, and we would be pleased to submit further prices for your approval for arranging the bell to be hung rigid which would make a very substantial reduction in the cost.
>
> We beg to remain, dear Sirs
> Yours faithfully.
> For John Warner & Sons Ltd
> ROBERT WARNER
> Managing Director.

Warners had (mercifully) quoted vastly in excess of what Mears or Taylors were asking for bells of seven or eight tons, though their letter remained for the time being on file. Even as they wrote, Taylor's representative, again in Bristol,

(continued overleaf)

Wotton progress

In 1994 an "ex-pat" member of the Wotton-under-Edge Branch of The Gloucester and Bristol Diocesan Association suggested that the author should give serious consideration to arranging a peal of Surprise Maximus for a band of past and present Branch members. The peal was successfully completed at Kidderminster in November of that year. This was achieved but, not without the usual crop of headaches which often beset such ventures. The same John Cornock then challenged the present members to do it "on their own"!

The Wotton Branch does not have a ring of twelve within its area but, we are fortunate to have understanding neighbours in Gloucester, Tewkesbury, Cirencester, Bristol and Llandaff! Several ringers with some experience of ringing on twelve moved into the Branch during the next year or so and, ringing on twelve became part of our regular activities. Members were invited to take part in quarter peals at the above towers and it became clear that we could perhaps respond to John's challenge if, we set it as one of our targets. Some members of the Branch took part in the occasional peal of Surprise Maximus while others expressed an interest to learn.

A tower was booked for early 1997 and serious recruitment began. Some twenty members were signed up for the project. The first phase was to be quarter peals, to include everyone who had enlisted. We are grateful to David Burt at Gloucester for making the bells available to us during the first half of December. Phase one has been successfully completed and below are the details of the two quarter peals rung. Nineteen members took part in phase one and there were a couple of others who weren't available at this time.

Hopefully, there will be chances for further practice before our peal attempt at Tewkesbury but, in the mean time, the future's bright, the future's Maximus in the Wotton Branch. There are two questions remaining: Will there have to be two peal attempts in order to accommodate all the potentials, and which tower in the branch will be going for augmentation in 1997?

I. P. UNSWORTH

Gloucester (Cathedral). 1 Dec, 1346 Yorkshire Surprise Maximus: Jane Bull 1, Hannah Woor 2, Julie Diserens 3, Janet Fox 4, Andrew Ward 5, Frank Byrne (C) 6, Steven Chandler 7, Andrew Binstead 8. John Taylor 9, Andrew Bull 10, Philip Pope 11, Ian Unsworth 12. First quarter peal of Surprise Maximus by a resident Wotton-under-Edge Branch band, (at the first attempt). First of Maximus; 8 First of Surprise Maximus; 3

Gloucester (Cathedral). 15 Dec, 1346 Yorkshire Surprise Maximus: Jane Bull 1, Gill Carey 2, Anne Pope 3, Hannah Woor 4, Janet Fox 5, Elizabeth Byrne 6, Frank Byrne (C) 7, Paul Barton 8. Timothy Soanes 9, Christopher Cooper 10, Brian Diserens 11, Andrew Bull 12. First of Surprise Maximus; 8. 89th birthday compliment to Walter Burt. £2.50