

Cathedral organ bellows and blowers

Now that the Cathedral's splendid 1851 'Father' Willis organ has been fully restored and is playing with all its faculties, it is timely to consider how it is powered. Where does the air come from and how, before electricity was installed in the Cathedral, was the organ (and its predecessors) powered?

Those questions, prompted by the talk given by Harrison & Harrison staff in autumn last year, have been investigated using records, a visit arranged by Custos Daren Gibb to the site of the air pump in the Cathedral's North Transept triforium, and the preparation of a drawing of the former manual bellows.

Currently, air is pumped from a compressor in the triforium through pipes to the organ. The compressor, a Watkins and Watson 'Discus' blower was installed in 1931 and was for three years the only use of electricity in the building. It replaced blowing plant that was powered by an Otto gas engine.¹ It appears that the previous manual bellows were augmented and then replaced with hydraulic power



Cathedral's electric organ blower (1931)

around 1887 with the new bellows (see drawings below) installed in 1888-89. In 1896, the apparatus was converted to gas power and the engine installed at the south side of the North Transept triforium.

The history of organs and the bellows that powered them can be traced to the Old Minster. In Wulfstan of Winchester's *Narration Metrica de S. Swithvno*, a history of the life of St Swithun which appeared around 995, there is a heroic image of the power needed to power the organ of those times:

Twelve bellows are joined in a rank above, and fourteen lie below: they produce the mightiest of gusts in alternate blasts. Seventy strong men operate them, flexing their arms, dripping with sweat; and they eagerly exhort their companions to drive the air upwards with all their force so that the swelling reservoir may resound with full chamber. It in turn sustains the four hundred pipes by itself, which the hand guides by musical skills controls: it is the hand which opens closed pipes and again closes open

¹ Andrew Parker, *Winchester Cathedral Organs – One Thousand Years*, 2nd edition, Winchester: Friends of Winchester Cathedral, 2004, p. 51. Electric lighting was not installed in the Cathedral until 1934, three years after the electric-power compressor was fitted.

ones, as the melody of the music requires. And two monks of one mind sit together, and each controls his own manual.²

The historian Michael Lapidge considers that the bellows were probably 'simply hide blast-bags' or 'hand-held wedge bellows' rather than a complex pipe system. He is also doubtful that the seventy men whose physical effort powered the bellows were standing in the Old Minster's nave. That Wulfstan wrote they sent the blasts of air 'upwards', suggests that they and the bellows were in a crypt or cellar below the floor of the nave. All seventy may not have powered the bellows simultaneously, and could have been organised in three shifts, each of twenty-six men, who each manned a single hand-held wedge bellow that forced air into the many copper or bronze pipes. The organists were 'fratres', monks rather than lay musician, and played the organ by pushing and pulling slides.³

The organs in the Old Minster and the Cathedral did not play music as they do now. Their purpose, and of the bells, was 'to make a joyful noise' to summon people to services or to acclaim an important moment in the liturgy, such as the elevation of the Host at Mass. Andrew Parker considers that the early organs were a 'signal organ, rather than a musical instrument'.⁴

There are few records of the Cathedral organs until the seventeenth century. During the English Civil Wars, the organ was removed in December 1642 when Winchester fell to the Roundheads and was not restored until six years after the Restoration in 1666. Thomas Thamer built a new organ between 1665 and 1670 but its bellows were problematic and needed repair several times in the late seventeenth century. It was still in use around 1823 when Benjamin Blyth was engaged to rebuild it.⁵ Bellows are mentioned several times from the early seventeenth century to the early nineteenth century, mainly in bills for their replacement.

It was not clear where the bellows were placed within the Cathedral until Blyth's son James was hired for 'improving the organ' and, in 1846, moved the bellows and blowing mechanism to the Holy Sepulchre chapel which was (and still is) immediately below the organ.

² Wulfstan of Winchester, *Narratio Metrica de S. Swithvno*, in Michael Lapidge (ed.) *The Cult of St Swithun*, Oxford: Clarendon Press, pp. 383, 385.

³ Wulfstan, *Narratio*, pp. 383, 385, 387, n. 147-8, n. 150-3, n. 155-9.

⁴ Parker, *Organs*, pp. 2-3.

⁵ *Ibid.*, pp. 5-6.

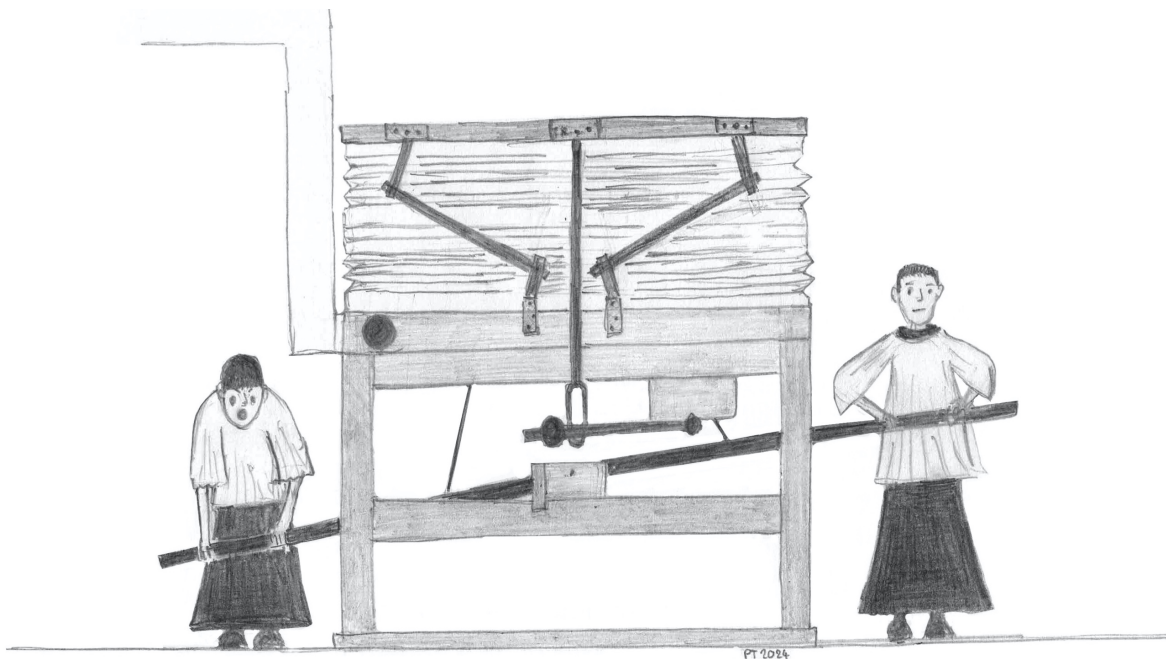
The blowing plant had a cranked rotary action for its manual operation. It was around this time that a staircase, made notorious by Samuel Sebastian Wesley, was built in the vault of the chapel and allowed access to the organ. It was later removed.⁶

The Willis organ, which had been shown at the Great Exhibition of 1851, was installed and operating by 1854. Its introduction was delayed by concerns about its weight upon the structure of the Holy Sepulchre chapel beneath.⁷ It is unclear whether the blower and bellows arrangement for the new Great Organ remained in the chapel but within thirty years it had been transferred to the



The blower housing in the North Transept

western triforium of the North Transept. The manual bellows installed there are still in position and may have been kept serviced for many years as a back-up to the powered compressors.



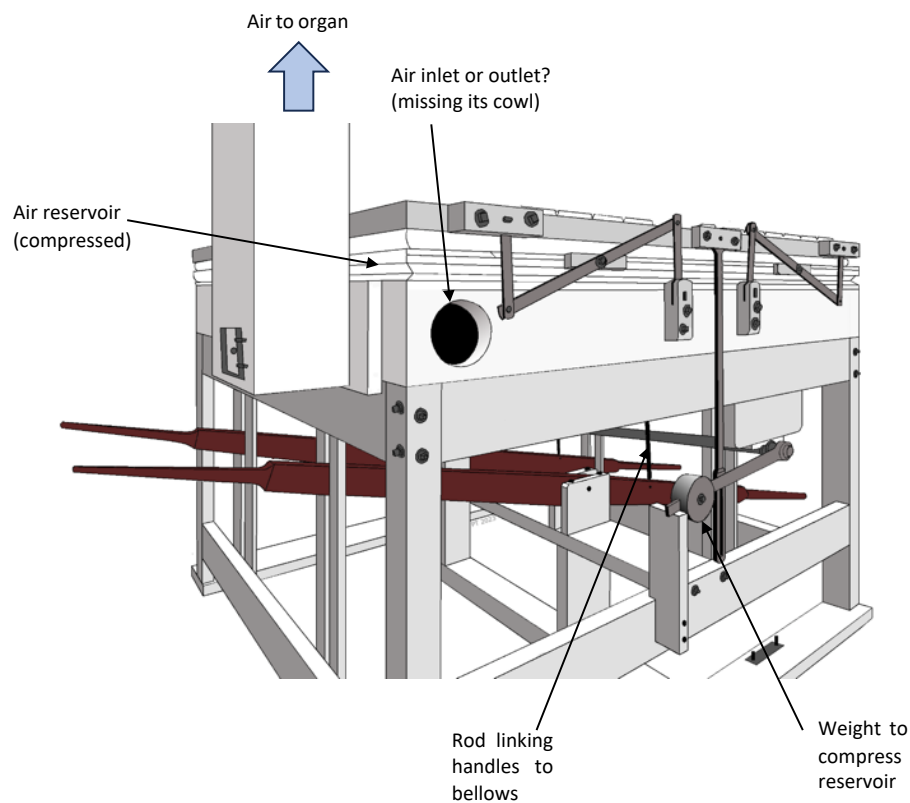
The bellows were pumped by the arms in a rocking motion (Paul Tanner)

As it was not possible to take a photograph of the complete manual bellows, Cathedral guide Paul Tanner prepared a drawing of the manual bellows which has six arms, each of which would have been pushed up and down by a single person. It appears that four of the arms

⁶ *Ibid.*, p. 13.

⁷ *Ibid.*

were employed to produce the main air movement to the organ with a further two arms, which are shorter and not visible in the drawing. They may have supplemented the main bellows or have been employed for music that required more delicate air flow.



Although the arms of the bellows were rocked up and down in a vertical movement, they would have lifted or suppressed the air reservoir uniformly when either of the handles were moved. There is a counterweight which helped pull the bellows down until the handles were both level at a midpoint, then the handles lifted it back up again. The counterweight would assist the bellows in providing a regular flow of air, rather than causing it to suck and then blow which would give an intermittent air flow. The approximate size of these late nineteenth century bellows is 1.5m high x 3m long x 2.4m wide (5ft x 10ft x 7.5ft)

The photos that follow show the bellows pumping mechanism from different angles. In the second photo, the additional (fifth and sixth) arms can be seen to the right of the image.



One of the rocker arms on the manual bellows



The whole rocker mechanism of the bellows can be seen

Tom Watson, with contributions from Paul Tanner

Illustrations: Paul Tanner; Photographs: Tom Watson