

# THE AQUA-MASON

## WILLIAM WALKER, Stalwart Diver, Underwater Mason & the Saviour of Winchester Cathedral

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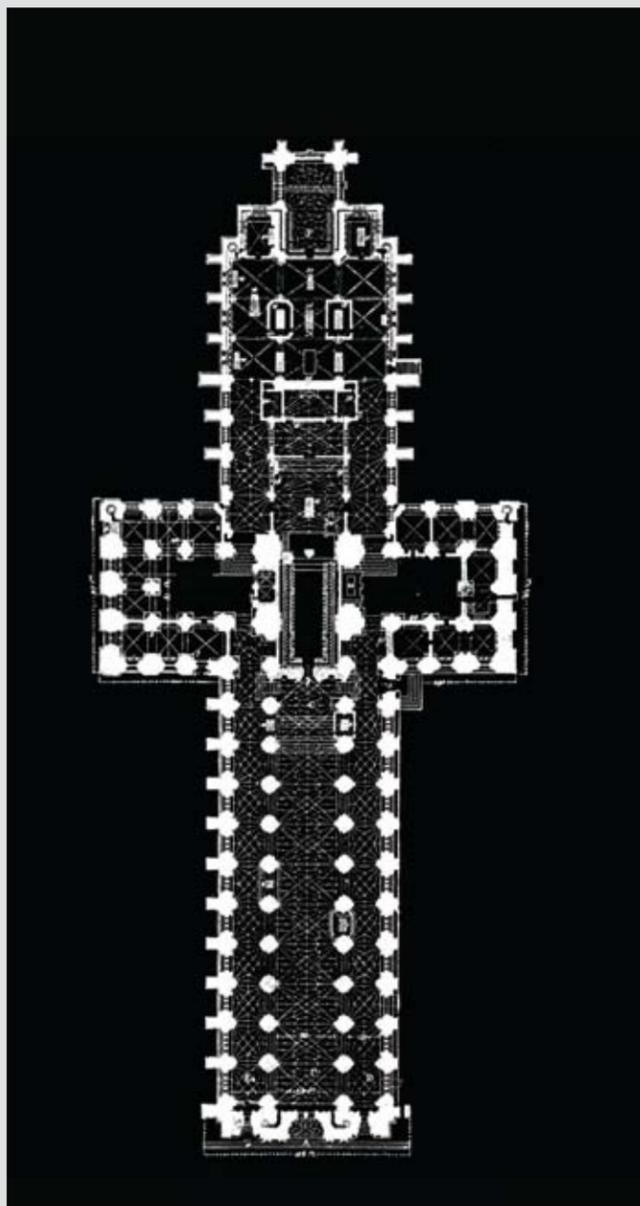
*A long time ago,  
before England was England. . .*

One thousand, three hundred and sixty-seven years ago to be precise, in 648 the West Saxons in the kingdom of Wessex undertook to build a church in the town then known as *Wintancaester* near the south-central coast of Britain.

*Wintancaester*, later Winchester, is located in the valley of the River Itchen.

The Itchen valley has peaty soil and a very high underlying water table.

And therein lies a tale. . . .



### *The church the Saxons built,*

the *Old Minster*, was a fair-sized ecclesiastical structure by the standards of the day, and it served its purpose adequately for more than three centuries. . . until a group of newcomers decided to replace it with a much, much bigger church.

These newcomers were the Normans—Norsemen, who for a hundred years or so had occupied northern France and adapted the French language and French customs. During this time they had been exposed to a somewhat recent trend in religious expressionism—the construction of massive stone and glass churches known as ‘cathedrals.’ Ostensibly raised in tribute to a heavenly God, these buildings served more realistically as a magnificent reminder to dirt-bound mortals of the elevated station of His middle-management team down here. There was an added element of civic competition, as each building tried to out-soar and out-mass its ecclesiastical rivals in neighboring regions.

In 1066 the Normans crossed the Channel, invaded what was now England, defeated its army and killed its king. Within a half-dozen years they were well established and had begun building stone castles, churches, cathedrals and monasteries in a new style of construction: Norman architecture.

So it came to pass that in 1079, on land adjoining the Saxon Old Minster church, Norman masons under the supervision of a Norman bishop began construction on what we know today as Winchester Cathedral.

The original Norman Romanesque morphed into the trinity of Gothic cathedral architecture—pointed arches, intertwined ribs supporting vaulted indoor ceilings, and exterior flying buttresses. Over time an elegant, solid and truly gigantic building was crafted. When the dust finally settled some three centuries later and the holy house was consecrated, it must be said that the ‘soaring’ and the ‘massive’ aspects had been achieved.

Consider, in modern terms, the proportions of what they accomplished: at the highest point, Winchester Cathedral is tall enough to house the Statue of Liberty and impressively longer than a professional soccer pitch—212 feet longer.

As for mass, it is estimated at between 80,000 and 100,000 tons. Three quarries on the Isle of Wight were played out before enough stone had been supplied for this one building. Enormous is one word for Winchester Cathedral’s mass but there is another that is appropriate: problematic.

The first recorded instance of a serious problem came in the year 1107, when the cathedral’s central crossing tower collapsed. This was blamed by some on the fact that King William II, a man ‘addicted to every kind of vice,’ was interred beneath it in 1100. A more insightful chronicler of the era, however, William of Malmesbury, ignored such explanations and correctly assigned blame for the tower’s collapse on faulty workmanship and unsound foundations.

There is evidence that the Norman masons were aware of the problem of the foundation’s subsidence even as it was being built—courses of tapering stones were laid then to bring the masonry back to level.

Symptoms of a larger underlying problem persisted for several centuries, including multiple large cracks opening in the masonry and an occasional random falling stone. But it would take another 800 years for the crisis to reach a true breaking point.

John Hardacre, a contemporary curator of the cathedral, told a BBC documentary crew, “They cannot but have noticed that the whole building was listing down to the southeast. I suppose it was a case of ignoring it and hoping it would go away.”

Early in the 1900s cracks in the building had widened to the point where animals were literally setting up home inside of them—including but not limited to owls, martens, rats and swarms of bees. Several of the cathedral’s 120-foot high walls were bulging out by as much as four feet, and the south transept was tilting at an angle more than half that of Pisa’s famous Leaning Tower.

William Furneaux, Dean of Winchester Cathedral from 1903 to 1919, knew the problem could no longer be ignored when he witnessed a five-year-old child at play hiding in one of the building’s larger cracks. He decided it was time for some serious work to be done on the cathedral.

“The great builder-bishops who created this cathedral over 1000 years ago, they hadn’t the skills or machinery that we take for granted now, but they did have faith,” Furneaux told a London newspaper. “With such faith, they were able to build such a place as this, in defiance almost of the basic laws of physics. . . . Now we have the skills, the machines. Such machines that would have made them marvel. But do we have the faith? And the vision? Or at least the will to save it? I think we do.”

After consulting with the pre-eminent English architectural and engineering firms of the day, good Dean Furneaux reached the unavoidable conclusion that many portions of Winchester Cathedral were on the verge of irreparable collapse. Simply put, his beloved ‘Medieval Masterpiece’ was in danger of being lost forever. So Furneaux decided to make it his mission to save Winchester Cathedral. Faith, vision and will were all abundantly present but the money to put the skills and machines into action seemed to be in short supply.

Though the church did not yet have the money to pay for the whole project, he called in an architect, Thomas Jackson, and a civil engineer, Francis Fox, and told them to begin immediately. Work got underway as Furneaux launched an unprecedented nationwide fundraising campaign to pay for the extensive and expensive repairs. First, the building was shored up with temporary scaffold-style bracing of large wooden timbers—earning it the nickname ‘the cathedral on crutches.’

Next, resident wildlife was evicted from the larger cracks in the masonry and those cracks bridged with mortared tie-stones. Grout was then pumped into the voids using hi-tech equipment for its time—the Greathead Grouting Machine. Tie-rods were designed, but drilling the holes to receive them was stopped soon after it began when a stone fell from the vault. Presumably it was thought that consolidating the masonry in this way would prevent the walls from collapsing when they were undermined.

And then the digging began. . . .

Dr. John Crook, speaking to a film-school documentary crew in his role as Winchester Cathedral’s official archaeologist, describes what happened next: “The idea was simply to dig trenches in order to achieve the underpinning. . . they go down through the topsoil, they go down through the subsoil and they eventually reach the bottom of the old cathedral foundations, the 13th century footings, and then they can start tunneling underneath the walls themselves. And the walls don’t collapse because it’s not a very wide gap and the masonry will hold itself up. They carry on going down and they get to peat! And we’re now talking about probably four or five metres below the surface on which we’re standing here. Then they break through the peat layer. . . and lo and behold the water underneath, within the gravel, comes surging up (due to) artesian pressure and fills up the drift, or trench, very rapidly above their heads.”