

Did History Actually Teach Us Anything? – Episode 1: Globe Theatre Fire 1613

Laura:

Welcome to “Did History Actually Teach Us Anything?”. The podcast where we unravel the most well-known tales of calamity, mishap, and unforeseen consequences that have shaped the course of history. And consider whether we’ve actually learned anything from them all these years later. In this podcast, we examine the historical events that you may think you know about already and the causes that led to them, be they icebergs or baker’s ovens.

We will consider whether these tragedies could have been avoided, and some of the surprising things we do differently now as a result.

But this podcast, isn’t just about dates and events. It’s about learning from the past, drawing insights from hindsight, and gaining a deeper appreciation for the complexities of what really happened in these events we think we know so well. So, get ready to encounter remarkable individuals, pivotal moments and fascinating insights that will make you appreciate health and safety and environmental management as far more than just red tape.

In this episode, we explore a dramatic incident from the world of theater. Imagine a bustling performance, the anticipation of the crowd at its peak. Suddenly a cannon misfires, igniting the wooden beams and thatching of the theater. Within an hour the entire structure is engulfed in flames and burns to the ground. Miraculously, no one is injured.

We’re going to uncover the story behind this fiery mishap and its lasting impact on theater construction. Joining us is our health and safety expert , Kevin, who will begin by telling us about the history and design of the globe theater.

Kevin:

The Globe Theatre was first opened to the public in 1599 and was built by the Lord Chamberlain’s men, which was the theatre company William Shakespeare part owned and wrote for. The theatre was situated on the south bank of the River Thames in Southwark.

It was built using 23 year old oak from a previously demolished theatre.

The ground was marshy and prone to flooding, so defences had to be designed into the building to protect it. A ditch ran around the outside of the building, into which rainwater was drained and which then emptied into the Thames.

The building also required solid foundations to prevent subsidence.

However, the owners of the theatre had to use the cheapest options possible in the building process because they were short of money.

This meant using reed thatch on the roofs instead of tiles. The theatre was a polygon with 20 bays, which was as close to circular as Elizabethan carpenters could achieve, built of wood with a limestone and brick foundation.

It was 30 metres in diameter and 9 metres high. The walls were made from large timber frames, filled with smaller slats of wood covered with lime plaster containing cow hair.

The stage, which was 13 meters across, eight meters deep and 1.5 meters high was surrounded by seating all around the circumference of the circle.

Above the stage, resting on huge wooden pillars was the ceiling, and above that several layers of buildings and balconies.

Musicians were located on one of the balconies during a performance, as Shakespeare often included songs and dances at the start and end of the production, or after the interval, or even as part of the plot in some cases, such as, As You Like It.

There were two trapdoors, one in the stage and one directly above the stage canopy, and a series of winches to allow the sudden appearance, or disappearance, of characters during a performance.

Five of the twenty bays were cut off by the tiring house walls. This was a multi purpose space used by the theatre company to store props, costumes and other theatre company belongings, and where the performers dressed and rested between acts.

There was a large open yard area in front of the stage for standing spectators, which was open to the sky and could hold around 1, 000 people during a performance. Above the stage area and the three levels of seating was the reed thatch roof.

This would effectively have surrounded the whole of the top level of the Globe Theatre in an unbroken

circle. Audience entrance to the theatre was either by way of two narrow passageways, which led under the seating galleries into the yard area, or by two external stair towers, which led into the rear of the upper seating galleries.

It's presumed that there would have been one passageway and one stair tower on each of the east and west walls of the theatre, in relation to the stage.

Performers used one external door from the tiring house, which exited directly into the street on the east side of the building. The flooring in the yard area consisted of crushed hazelnut shells, mixed with silt, which made it flat, but likely to have become boggy in wet weather. There were no toilets in the theatre, but there was food and drink for sale, both of which were likely to have made the floor surface unpleasant and slippery.

Going to the theatre was an extremely popular pastime in Elizabethan England and was very affordable for even the lowest paid worker of the time.

It only cost a penny to stand in the open yard area in front of the stage and the most expensive seats cost six pennies. To put this in perspective, a loaf of bread or a pint of beer cost a penny at that time. There were private seating areas, much like boxes in modern theatres at the side of the stage, which were hired by wealthy people to entertain their guests. Tapestries were used to cut down draughts through openings.

An audience of up to 3,000 people was common for the most popular players at the Globe. The performers and audience could always see each other clearly.

In fact, the audience was an integral part of any production, booing the villains and cheering the heroes, joining in with singing and dancing and loudly making their feelings known about the quality of the performance, much like a modern day pantomime. As the audience entered the theatre, they put their payment into a box, which is the derivation of the term, the box office, which is still in use today. However, it's likely that it was operated as an honesty box, so it would be impossible to know for sure how many people attended each performance, merely how many had actually paid.

It was certainly not a risk free pastime though. Theatres were poorly built. Indoor theatres used candlelight, both in the auditorium and on the stage, for lighting effects.

The Globe only used daylight, so relied upon fair weather for lighting, but also to ensure that the audience remained warm and dry during the performance.

Theatres were frequented by pickpockets, so you are quite likely to have your valuables stolen at some point if you attended the theatre often enough.

Performances were also known for rowdiness and sometimes even violence. There was no social distancing in place, so, during episodes of the bubonic plague, audience members, particularly those standing in the yard area, were highly likely to become infected.

In 1603, 20 percent of the London population were killed by such an outbreak. The average life expectancy in Elizabethan England was only 30 years of age.

Laura:

So Kevin, how, and when did the globe theater catch fire?

Kevin:

Have you ever heard someone say he brought the house down when talking about a theatrical production? Do you know what the saying means? It usually means that the audience has reacted to something said or done on the stage by laughing or clapping very loudly. The saying doesn't usually mean that the theatre was destroyed during the performance. But that's exactly what happened on the 29th of June 1613, during an afternoon performance of Shakespeare's *Henry VIII*.

What would have been a normal trip to the theatre, became an unforgettable experience for all the wrong reasons.

During a scene depicting the siege of Boulogne, a cannon loaded with gunpowder and cotton wadding was fired. A piece of the wadding landed on the thatch and this ignited the roof. Fortunately, there were no cannonballs in use.

Are you surprised that a real cannon was used in the theatre? Remember, this was a time before computers generated special effects, and so the only way to generate the effect of cannon fire was to use an actual cannon. There are several well known musical pieces that use cannons, even today, to create realistic effects, such as Tchaikovsky's 1812 Overture. The use of cannon fire in a theatrical performance

will be familiar to anyone who has seen the musical theatre production of Martin Guerre. Where, surprisingly, they point the large cannon at the audience before firing it.

The use of special effects was common in Shakespeare plays, but many of them needed special ingredients that were expensive to buy. Lightning flashes were created by throwing powder, made from resin, into a candle flame. Thunderbolts were created by attaching a firecracker to a wire which, when lit, shot from the top to the bottom of the wire, making sparks all the way down.

Smoke was a common special effect, which could be a variety of colours, depending on the mix of chemicals they used. Although they didn't use real flame very often, because they knew it was dangerous in a thatch building when it was used, it was created by burning strung alcohol with a variety of salts, depending on what colour they wanted the flames to be. It's perfectly possible that traces of the chemicals used in the special effects had seeped into the walls, seating and the roof of the theatre over time. And then there were props, scenery, make up and costumes, all of which were highly flammable.

With such a long list of combustibles, it was only a matter of time before the Globe Theatre had a serious fire..

Laura:

Well, could the fire have been avoided?

Kevin:

If we consider the fire triangle, there are three essential components for a fire to occur. Fuel, oxygen and an ignition source. The construction materials and contents of the globe provided endless supplies of fuel: wood, thatch, fabrics, chemicals and so on.

The design of the building itself ensured there was an almost uninterrupted thatch roof, so that once it did catch light, the fire could spread quickly. The globe was open to the air in the centre and had open passageways to allow audience access to the yard area. There were also trap doors and open balconies, all of which were able to supply an endless amount of oxygen. The lit cannon wadding provided the ignition source for the fire.

If The globe had been built with a tile roof in 1599, then the outcome of the 1613 fire would have been hugely different. However, it was common for buildings in London at that time to have thatched roofs, as tile roofs were much more expensive to install. If we could go back in time and change one thing to avoid the fire, it would be to advise Shakespeare that cannons are dangerous. In fact, without the cannon, this fire wouldn't have happened at all.

Laura:

So could the outcome of the fire have been different?

Kevin:

The Globe was a fire safety nightmare. It didn't have an alarm system to warn anyone in the audience or backstage about the fire in the auditorium. The fire wasn't even noticed for some time because the audience were concentrating on the performance taking place on the stage, and the fire was seated in the thatch roof nine metres above the audience.

It's even possible that anyone who did spot the smoke in the thatch might have thought it was part of the special effects of the production, rather than something to worry about. There wouldn't have been a formal fire brigade nearby they could contact to deal with the fire anyway. And there would have been no point in calling 999, even if they had invented the telephone by then. It would be 1833 before London had its first fire brigade some 200 years too late to help save The Globe.

So, how did they fight the fire? Their only option was to use a chain of people passing buckets of water, possibly from the ditch around the theatre, but most likely from the Thames, which even at that time was a very polluted river. This would have been time consuming and exhausting work, and they were unable to bring the fire under control. Consequently, the theatre burnt to the ground within an hour.

And what about crowd control? The Globe wouldn't have had ushers telling people how to exit the theatre safely in the event of an emergency. Egress from the yard area was restricted to the two narrow passageways under the galleries mentioned earlier, with around 1, 000 people trying to leave. Luckily, they were furthest away from the fire in the roof, but they could well have been the last people to notice the fire, and therefore to start leaving the building. In fact, they may well have watched the fire for a while

until they realised it was spreading throughout the building and they were at risk.

Audience members sitting in the galleries, of which there would have been up to 2,000, had to descend using the two external stair towers, one on each side of the building, the tops of which would have been perilously close to the burning roof. It is extremely lucky that everyone was able to descend safely and without injury.

Performers would have had to leave through the tiring room which was full of combustibles because the stage was too high off the ground to jump down and exit through the yard passageways. Musicians would have had to descend from the upper balconies close to the fire, down into the stage level, and then out through the tiring room, which may well have been made more perilous because of the smoke generated by the burning thatch.

If the fire had been in any of the seating tiers or in the tiring room, the outcome of the fire might have been far worse for the people involved. If there had been panic or violence, then injuries or even fatalities could easily have occurred. But, amazingly, there were no reported fatalities or serious injuries at all resulting from the fire.

It was reported that a man's trousers caught fire, but someone quickly doused the flames with a bottle of beer. In fact, the whole episode became the subject of a popular ballad by the time the fire died out. The only casualty of the whole affair was the Globe Theatre.

Laura:

How could modern fire safety systems have changed the outcome of the globe theater fire?

Kevin:

Although there have been some theatre fires since the formation of the Fire Brigade in the UK, modern fire safety systems mean that both buildings and people are kept safe. Firstly, there are now rules in place to ensure that buildings are constructed using safer fire retardant materials and designs that facilitate evacuation in an emergency.

Most theatres have their audiences fully seated during performances and ticketing systems allow accurate calculation of attendance numbers during performances. Buildings must now have sufficient emergency exits which are kept clear of blockages, adequately lit and well signed. There are often announcements before the start of performances giving the audience basic instructions to follow in the event of an emergency, such as follow the instructions of theatre staff and use their nearest emergency exit to leave the building.

Theatres are required by law to have fire alarms and firefighting equipment installed, such as extinguishers and sprinkler systems. Larger public buildings, such as theatres, also have their alarm systems monitored by local emergency services to ensure they arrive at an emergency quickly.

Secondly, fire risk assessments are undertaken that take account of the work activities carried out. In a theatre, there will be a general fire risk assessment in place, and then individual ones will be carried out for each production they host to take account of their specific hazards. Fire risk assessments are used to identify hazards and to reduce the risks they cause.

Cannons wouldn't be loaded with real gunpowder and cotton wadding in a modern theatre, for instance. Instead, they use air or carbon dioxide cylinders to create a similar effect. Many special effects are now generated using a computer and electronic equipment, including sound effects.

Any props, costumes, scenery and make up used within the theatre must conform to relevant standards in respect of components and fire safety ratings. For instance, lead is no longer used in paint or make up in the theatre because of its toxic nature. In a fire, lead gives off a highly toxic vapour, which remains in the body long after the fire and can harm almost every system in the body. Venues may be required to obtain public entertainment licences from their local councils before they can host any events. and risk assessments are required to ensure the venues are operated in line with health and safety guidance.

Thirdly, there are trained people on hand in the theatre during every performance who can direct members of the public outside to areas of safety during an emergency. There are communication links between them and with the Emergency Control Centre via walkie talkies. They will check designated areas to ensure that everyone has left the building and would assist anyone with mobility issues or with additional needs. Equipment such as evac chairs are on hand, located in stairwells and on landings, for anyone who requires help with descending the stairs from upper seating levels.

Laura:

Well, was that the end of the Globe Theater?

Kevin:

Whilst there were no reported casualties or injuries resulting from the fire at the Globe Theatre, the building itself and its contents were destroyed. The theatre was rebuilt over the course of the following year with a tiled roof, but there was no building and contents insurance in Elizabethan England to help cover the cost, which instead had to be borne by the Kingsman Theatre Company.

And what about the effect of the fire on Shakespeare personally? Although we can't know for certain, it is likely that his revenue stream would have been severely affected. Even though plays could be hosted at other theatres, they didn't have the seating capacity of the Globe. It's likely he started to run out of money and the stress of the situation adversely affected his health. He certainly wasn't part of the Kingsmen Company when the Globe was rebuilt. He sold his shares in the company after the Globe Fire and returned home to his family in Stratford. He wrote his last script in 1614, *The Two Noble Kinsmen*, which is believed to actually make reference to the Globe Fire, and two years later he died.

The Globe was then knocked down by the Puritans in 1642 and subsequently built over. It is lucky that the theatre had already been demolished by the time of the Great Fire of London in 1666, but that's the subject of a different episode of this podcast. However, the foundation survived under the more modern buildings and were rediscovered in 1949.

This allowed archaeologists to understand its original construction along with engravings of London prior to the fire in 1613 and shown the outside of The Globe. A modern replica of the original Globe Theatre was built in 1970 using this information but taking account of modern fire standards and was officially reopened in 1997.

It is now once again providing entertainment through its programme of productions and events.

Laura:

And finally, what lessons did we learn from the fire in 1613, and how did that impact the replica that was built?

Kevin:

There are sprinkler valves positioned in the ridging of the thatched gallery roofing, along with conduits for the electrical wiring, to ensure sparks cannot again ignite the thatch. The thatch itself is now fire retardant, due to the use of thatch bats, aluminium barrier foil and fire retardant spray. In fact, special permission had to be sought to build the replica with thatched roofs. A law had been in place in London since the Great Fire of 1666 banning thatched roofs.

The staircases and access doors have been made wider with an increased number of access points to the theatre yard. This allows quicker and safer egress from the building for the audience in the event of an emergency.

Building materials have been selected with fire retardant properties. So the oak used is new green wood which is harder to ignite. Lead paint is no longer in use, removing any risk of inhaling poisonous lead fumes.

The audience numbers are now restricted to 1,570 for any performance, 700 standing and the rest seated, and entrance is by ticket only. This ensures that risk to life in an emergency is reduced.

All special effects are now carefully regulated, including the use of cannons. And all props, costumes, scenery and make up are safe to use. The Globe Theatre holds a Current Premises Licence issued by Southwark Council, who regularly visit to ensure compliance with electrical installation requirements, evacuation procedures and emergency lighting testing.

All staff members are briefed and trained to assist audience members to move clear of entrances during performances, exit safely during an emergency and control the audience flow through the building. There is also permanent security presence on site and CCTV monitoring systems.

So, the effect of the changes is to give the audience an authentic experience of Shakespeare without the unnecessary drama.

To quote Shakespeare himself, All's well that ends well.

Laura:

Thanks for joining us on this episode of "Did History Actually Teach Us Anything?". If you enjoyed this episode, please follow our social media channels, leave us a rating and review, and share our podcast with anyone who wants to learn more about the risky side of history. And don't forget to subscribe so you'll get the next episode as soon as it's available. Join us next time to learn whether history did actually teach us anything...