

Fire disasters

Fire is associated with many kinds of disasters. Both as cause and effect. Volcanoes, earthquakes, storms and even floods can cause catastrophic fires. So can crashing planes, derailed trains and overturned tankers.

In the following, only pure fire disasters are considered, i.e. those originating from "wildfire". Fire accidents with a few fatalities are not uncommon. They can, of course, be a disaster for those close to them or for society, but rarely receive much international attention. Large fires in built-up areas or forest fires, which do not cause many fatalities, are rarely described as disasters.

In international statistics, fires causing 20 or more deaths, or damage of \$30 million or more, are considered disasters. On average, some 40 such fire disasters occur each year.

Among historical urban fires, the Great Fire of Rome in the time of Emperor Nero in 64 AD and the Fire of London in 1666 are the best known. It is not known how many people died in these fires. The London fire destroyed most of the city, leaving 13 200 buildings and 87 churches in ashes.

The fire disaster with the highest death toll is thought to be a church fire in Santiago, Chile, in 1863. The church, named La Compagnia, was one of the largest and most beautiful Catholic churches in South America. During an Advent service, the church was adorned with countless paper decorations. Just before the service, thousands of paper lanterns were lit in different colours.

The church had no pews, so about 3,000 people, mostly women and children, stood packed into the church or knelt. One of the lamps caught fire and within minutes the fire spread through the decorations throughout the church. Panic broke out and everyone rushed to the main entrance which was corked shut. 2,500 died, most of them women and children.

In the 19th century, theatre fires were the most common to turn into disasters. The Great Theatre fire in Canton, China, in 1845 is said to have claimed 1,670 lives.

In the 20th century, fires in hotels, nightclubs, circuses and cinemas were the main disasters, killing hundreds. Department stores and high-rise office buildings have also suffered fire disasters in the latter part of this century.

Fires in entertainment venues, prisons, schools and meeting places of all kinds have killed many people. Examples of such disasters include a school fire in Chicago in 1958 in which 90 schoolchildren and three adults died.

A fire in an amusement park on the Isle of Man in England in 1973 claimed 51 lives, most of them children. In Heusden, Belgium, a school fire in 1974 claimed the lives of 25 children. At a school ceremony in 1995 in the town of Dabwall, Haryana state, India, 2,000 schoolchildren and their parents had gathered in a walled-off area with a canvas roof. The roof caught fire and fell on those assembled. Over 300 people died, many of them children. Some of the worst fire disasters of the 20th century are described in more detail below.

Fire disasters in theatres, circuses and cinemas

From the 17th century to the early 20th century, theatre fires were the main cause of death. A fire at the Amalienborg Theatre in Copenhagen in 1689 killed 290 people. Paper decorations caught fire during a performance. The fire quickly filled the auditorium with smoke and the crowds at the few exits became so large that only a few people were able to escape before the theatre was engulfed in flames.

Of the many theatre fires of the 18th and 19th centuries, the following are particularly noteworthy:

YEAR	PLACE	DEATH
	Amsterdam, Schouwburg	
1772	Theatre	77
1778	Spain, Saragossa Theatre	77
	USA Virginia, Richmond	
1811	Theatre	70
	St Petersburg, Lehman's	
1836	Theatre	700
1845	China, Canton, Grand Theatre	1670
	Canada, Quebec, St Louise	
1846	Theatre	45
1876	New York, Brooklyn Theatre	295
1881	Vienna, Ringteatern	384
1881	France, Nice, Opera House	70
1887	Paris, Opera Comique	200
	Portugal, Oporto, Theatre	
1888	Building	200

In the 20th century, following the Iroquois Theatre fire of 1903, the number of theatre fires has decreased and the number of fatalities has been lower than in the past. The main reason for this is that the aforementioned fire attracted worldwide attention. It led to stricter regulations on fire safety and evacuation facilities, and to the requirement for firemen to be security guards during theatre performances.

Fires have also claimed many lives in circuses and cinemas. In 1883, a fire at the Ferroni Circus in Berditschoft, Poland, killed 430 people.

In the 20th century, fires in circus tents and cinemas in particular have caused hundreds of deaths.

In the case of circus tents, there was originally no requirement that the canvas be flame retardant. Neither were there any requirements for evacuation facilities. Following the circus tent disasters in Hartford, Conn. USA and in Niteroi, Brazil came, as for the theatres, stricter fire safety requirements.



Ringteaterns brand i Wien 1881. Människor hoppar från balkongen mot Schottenring. (Pica Pressfoto)

The numerous and severe fire disasters in cinemas up to 1963 were mostly caused by the flammable film, nitrate film, previously used. Since the advent of acetate film, which does not burn as fiercely, cinema fires have become less frequent disasters, a contributory factor also being the requirement for fireproof enclosures for machinery.

Examples of disaster fires in theatres, circuses and cinemas in the 20th century are shown in the table opposite.

	DEAD
1903 Chicago, USA, Iroquois Theatre	602
Boyertown, Penns, USA Rhoades Opera	
1903 House	170
1909 Acapulco, Mexico Florestheater	300
1919 San Juan, Puerto Rica, cinema	150
1924 Smyrna, Turkey, cinema	100
Montreal, Canada, theatre fire, all children	
1927 killed	78
Madrid, Spain, Novedadestheatre, 350	
1928 injured	110
1929 Paisley, Scotland, cinema, all children killed	70
1929 Igolchino Russia, cinema	150
1930 Seoul, Korea, cinema	150
1930 Kirin, China, cinema, 300 injured	160
1932 Shakok, China, theatre, 300 injured	160
1936 Tuliuchen, China, theatre, 300 injured	221
1941 Guadalajara, Mexico, cinema	87
1944 Hartford, Conn USA, Ringling Circus, tent	323
1947 Rueil, France, Amude theatre	87
1960 Syria, cinema, all children killed	152
1961 Niteroi, Brazil, Giourbel circus tent	323
1963 Senegal, cinema	64
1976 China (location not specified) cinema	694
1994 China (location unknown), cinema	327

The Iroquois Theatre Fire in Chicago 1903

EVENT: Burnt down theatre building

DATE: 1903-12-30

PLACE: Chicago, USA

DEAD: 602

INJURED: 250

Family show turned tragedy

The most famous fire disaster of the 20th century, in terms of deaths, occurred on 30 December 1903 in Chicago. The newly built Iroquois Theatre, considered "fireproof", caught fire. No fewer than 602 people lost their lives and 250 were so badly injured that they had to be taken to hospital.

How did it happen? That's a question often asked after major accidents. In this case, the question was particularly pertinent: after the Great Chicago Fire of 1871, when the theatre first burned down, great efforts had been made to make the new theatre "absolutely fireproof", as the publicity stated. Particular emphasis had been placed on ensuring that escape routes were adequate.

The 1600 people for whom the theatre was intended would have no difficulty in getting out quickly in the event of a fire.

The theatre was one of the finest ever built in the United States. It was a palace of stone, marble, sheet metal and glass. The interior was mahogany with gold gilding. But the stage house, like so many other theatres, had a lot of combustible materials. To prevent a fire in the stage house from spreading to the drawing room, there was a large asbestos curtain. This would cover the entire stage opening and could be quickly torn down in the event of a fire. During the Christmas holidays of 1903, family performances of a very popular pantomime "Mr Bluebeard" were given to full houses. During an afternoon performance on the day before New Year's Eve, people were also allowed to stand in the aisles and on the open floor spaces near the exits. There were probably about 2000 people in the theatre. That is 400 more than allowed.

During the first act, the atmosphere both on stage and in the auditorium became increasingly heated. The audience was dominated by women and children, who showed their appreciation with laughter and applause. At the beginning of the second act, a very beautiful number called "In the Bright Moonlight" was performed. Across the stage with sixteen dancers from the ballet, an effective moonlight flowed, from two disturbing spotlights on either side of the stage.

In the middle of the dance number, one of the stage-side arc lights overheated. It ignited a thin blue cotton cloth hung in front of the lamp to give the impression of moonlight. The cloth started to burn but this was not visible from the auditorium.

A moving eyewitness account

One of the actors who appeared in the show was the then very famous Eddie Foy. He has recorded his account of what happened in the early stages of the fire:

- I had brought my six-year-old son Bryan with me to the show. There was no room left in the packed auditorium. So Bryan was placed at the side of the stage on a loose chair, next to the lighting rig.
- During the dance number, I had gone up to my dressing room to change for my next entrance. From there, I heard noise and running downstage. When I came out and looked down at the stage, I saw neither smoke nor fire. But I had a strong feeling that something serious was happening. Could the fire be loose?

- My first thought was of my son, who was sitting down by the side of the stage. I rushed down the stairs and got to the right side of the stage. From there I saw that there was a fire up among the scenery over the left side of the stage. Despite this, the sixteen performers continued their dance routine in the middle of the stage. I ran behind and over to the left side. There I saw two stagehands, each with a fire extinguisher, trying to put out the fire, but the jets did not reach up.
- The fire was not yet visible out in the auditorium, except possibly to those sitting at the front of the stage. Only now did I hear someone scream in excitement and shout "There's a fire:". As I ran to where I had placed my son, and looked up, I saw the fire spreading rapidly through the wings. I was worried that Bryan wouldn't be there. But there he sat, horrified by all the commotion around him.
- When I got hold of my son, I ran with him towards the rear exit from the stage house. As I ran I thought of all women and children inside the auditorium and that they must be helped. Among all the people rushing out, I saw a man I knew. I asked him to take care of Bryan and I left my son in his arms. Then I followed them with my eyes and saw that they reached the exit to the street.

Eddie Foy has said that his thought was, after getting his son Bryan to safety, to help people out of the auditorium. He therefore ran back straight onto the stage. The music was still playing and some of the ballet danced bravely on, even though the fire was now burning right over their heads. Foy remembers seeing that people on the parquet had got up and were making their way out of the pews. Up on the balconies and in the gallery, however, panic was already setting in.

At that point, Foy pushed past the others on stage, towards the orchestra pit where the musicians were still playing. He was only half-dressed and knew he must look grotesque as he shouted out to the audience, "Don't get excited! Take it easy! It's all right!"

The music had stopped playing but the conductor stood calmly looking up at Foy. Some of the orchestra members were on their way out, however. Then Foy shouted down to the orchestra, "Play! An overture or whatever! But play!"

Turning his gaze back to the stage, he saw that the asbestos curtain was finally beginning to come down. But slowly, slowly, ... Then it stopped altogether, and was left hanging on a line stretched across the stage opening, without any thought to the significance of the asbestos curtain.

Foy turned back to the audience and shouted, "Go easy people! You're coming out!" Then he heard a sizzling sound behind him and saw the asbestos curtain flutter out onto the stalls. At the same time, heavy flames erupted towards the auditorium. The reason for this was that the large doors at the back of the stage house to the open air had been opened. This caused a violent draught towards the salon.

Foy realised that his life was now in danger. He considered whether to run out via the stalls or back across the stage. When he saw the crowd at the exits and saw that the fire was not yet burning at the far right of the stage, he chose that route. Just as Foy had crossed the stage, all the scenery and decorations went up in flames. Foy felt it burning over him and flames raining down on him. But he knew in which direction to run even though he was half blinded by the smoke.

Eddie Foy was probably the last to leave the scene. Out towards the street it was crowded. Many were screaming in pain from the burns they had received. The worst was for those who had been higher up in the stage house. A group of ballet girls had been rescued by a heroic elevator boy. With his elevator, he went up despite the smoke and brought them down, after the stairs were blocked by fire. However, the prima ballerina of the ballet, Nellie Read, had been so badly burned that she later died.

Soon after the stage was empty of people, the ropes of all the suspended scenery burned off. Tons of wooden materials, textiles and other easily combustible items collapsed onto the stage floor. At the same moment, all the lighting inside the theatre went out. The horror must now have been indescribable to those who remained in the auditorium.

There are many accounts of how people managed to escape from the theatre at the last minute. But there are also many accounts of how men, women and large numbers of children were burned to death, just metres from the rescue.

Many miracle rescues

In a building across a narrow alley from the Iroquois Theatre, a couple of painters were busy when the fire broke out. They saw people crowding out onto a fourth-floor balcony and then trying to get down an iron staircase on the outside wall. But suddenly flames erupted from a window below and blocked the way down.

The painters grabbed a narrow ladder, which barely reached across the alley. They managed to lay it as a bridge from the balcony to a window in the building they were standing in. When the ladder was in place, a man started crawling over it. But in the middle of the ladder, he wiggled the ladder loose from the bracket on the balcony side. The man fell with the ladder and was knocked to his death against the paving in the street.

The two painters did not give up, however, and found a plank that could be laid as a walkway from the balcony to their window. Twelve people managed to crawl over to the other building in this way. Just as the thirteenth was about to get out on the plank, a flame shot out from the balcony. There were still many women and children there, who were burned to death with heart-rending screams. Some jumped from the balcony with their burning clothes towards a certain death in the street.

One bright spot is that at the last second Eddie Foy miraculously escaped the scenery crashing on the stage and was able to get out. After searching among injured and shocked people around the burning theatre building, he reunited with his son Bryan. His carer held him safely in her arms despite fearing the worst as Eddie Foy lingered.

The fire brigade powerless

The Chicago Fire Department had deployed all available resources. The first ambulances and steam driven fire extinguisher were on the scene ten minutes after being alerted by a street fire alarm. Allegedly, all cries for help from inside the building had already been silenced by then. Extinguishing inside the halls and staircases was relatively quick.

It was inside the building that most of the victims were found. They lay in piles in the gallery and at the exits. The struggle for life there must have been among the most horrific that can occur in such contexts.

So why did the fire take such a catastrophic course? It was due to the fact that safety regulations had not been respected in several respects. 400 people too many had been taken in and were blocking the escape routes. In addition, the fatal rope that prevented the asbestos curtain from coming down had been tied up.

New stricter fire regulations for theatres worldwide

The major theatre fires of the late 19th century, and the Iroquois Theatre fire, led to demands from authorities, insurance companies and the public for better fire protection and safer evacuation facilities for theatres and other large venues.

Worldwide, regulations were introduced, including an iron curtain between the stage and the auditorium and fire ventilation over the stage house. In addition, firemen were required to be present near the stage as security guards during performances.

Nightclub fires that have become disasters

Nightclubs and entertainment venues, like theatres and cinemas, have suffered many fires that have turned into disasters with large numbers of people burnt to death and injured. Some examples are given in the table below.

In most cases of fires in nightclubs and dance halls, the causes have been the same: easily flammable decorations and furnishings, too many people in the premises at once. Inadequate, inappropriate and even locked escape doors. In some cases, evacuation started too late.

In many cases, the fire was quickly extinguished by the fire brigade once they were able to enter the premises. But often the entrances needed by smoke-helmeted fireman to get in have been blocked by dead and unconscious people.

In 1952, I spent a month in Boston studying with the N.F.P.A. (American Fire Protection Association) and with the city's fire department. I received many descriptions of the fire disaster that had occurred in the Coconut Grove nightclub ten years earlier. In the following, I have summarized the stories and descriptions I received.

	DEATH
1940 Rhythm Night Club, Natchez, Miss USA	198
Knights of Columbus dance hall, New	
1942 Foundland	100
1942 Coconut Grove, Boston Mass, USA	492
1947 Karlslust dance hall, Berlin, Germany	86
Club Five-Seven dance hall, Grenoble,	
1970 France	146
1972 Playtown Cabaret Sennichi, Osaka, Japan	118
1972 Blue Bird Cafe, Montreal, Canada	36
Summerland entertainment establishments, Isle of	
1973 Man, England	50
1974 Go-Go Club Dawang, Seoul, South Korea	78
1977 Night Club Southgate, Kentucky, USA	165
1981 Stardust Night Club, Dublin, Ireland	44
1984 Alcal Discotheque, Madrid, Spain	81
1994 Lianing Province Dance Hall, China	233

The Coconut Grove fire in Boston 1942

EVENT: Nightclub disaster fire

TIME: 1942-11-28, at 22.00

PLACE: Boston, Mass USA

DEAD: 492

INJURED: About 200

Amusement palace turned into inferno

The building that housed the Coconut Grove nightclub looked unassuming from the street side. It was a relatively simple single-storey brick building with a large basement facing a lower street. Inside, the building had a very different character. 'False' walls hid windows facing the street. The interior was very flammable - for example, artificial palm trees and decorations, which would give the impression of being in a tropical environment.

The upstairs was divided for a variety of activities, including a dance floor, stage, restaurant tables, three bars and a "New Cocktail Lounge". Two narrow straight staircases led down to the lower floor. One of them led to the kitchen and its associated rooms. The other to a "Melody Lounge" with a bar. This staircase was the only usable escape route for the downstairs guests. However, behind a 'false' wall there was a passageway to the kitchen for the wait staff. In addition, a locked door to a rear courtyard. However, it is unlikely that any of the guests knew of these means of exit.

Anyone going to the premises was taken in through a main entrance with a revolving (circular) door. To the side of this was a standard door with a panic rule, but this had been blocked by an additional locking device. From the lobby inside the entrance, where one left one's outer clothing, one could choose between going downstairs to the "Melody Lounge" downstairs or going into the dining room. In addition, you could go to other parts of the upper floor, including the "New Cocktail Lounge" at the end of the entrance.

Around 10pm we waited for the variety on the stage in front of the dance floor to start. Many of the guests were military personnel home on leave from the ongoing Second World War. The mood was high. The orchestra had just begun to play "The Star-Spangled Banner", as an introduction to the evening's cabaret programme. Then everything turned into an inferno of fire!

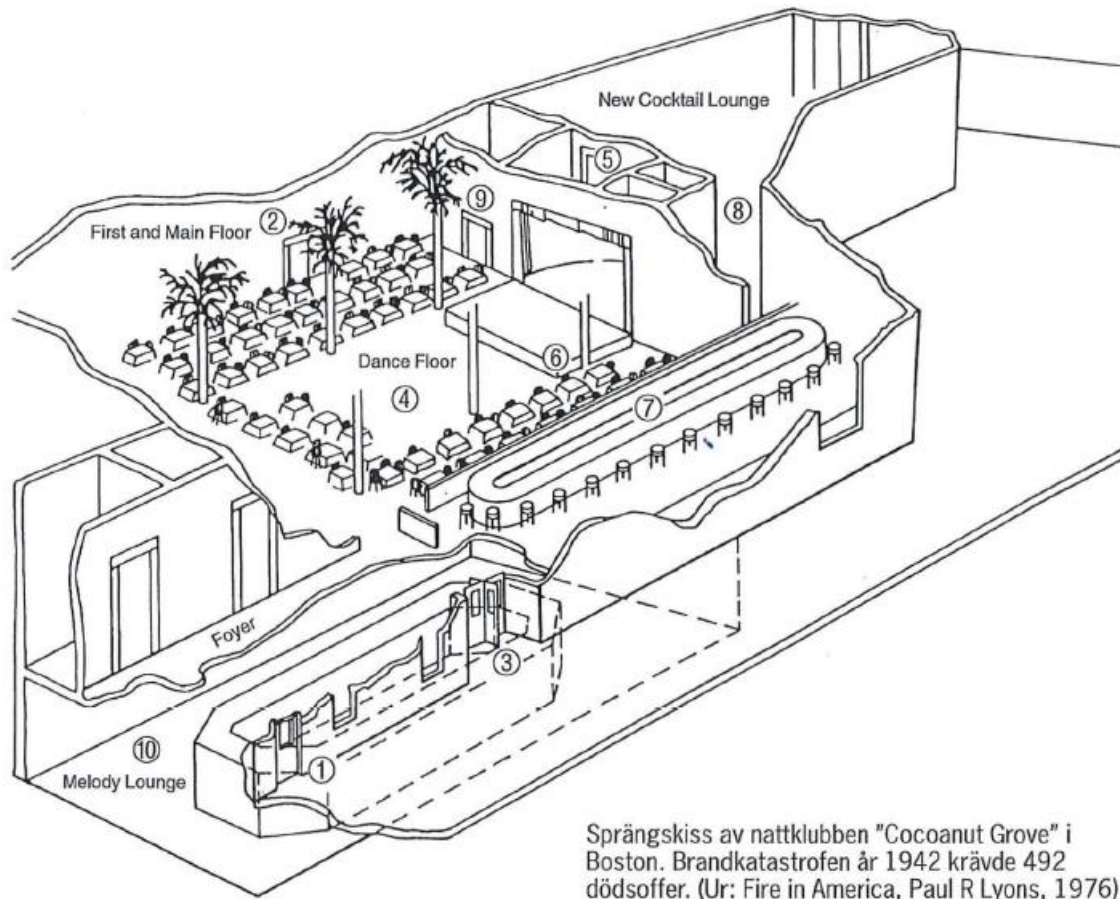
Match ignites coconut palm

Only one person has been able to tell how the fire started in the basement. It was the sixteen-year-old boy, Stanley Tomaszewski, who is believed to have started the fire. At the time, he was a waiter's assistant in the "Melody Lounge" on the lower level. His story read in summary:

- The Melody Lounge had dim lighting, but in one corner they wanted more light. I was asked to screw in a light bulb there, right next to a coconut palm with paper leaves. I stood on a chair to reach up. In order to see better, I lit a match. When I screwed in the bulb, I found that the palm leaves were on fire. The fire spread to the decorations under the roof. People screamed and got up from the tables. Some fell over in the crowd. I ran into the kitchen and shouted that there was a fire. Upstairs near the bar, insurance clerk Charles W. Disbrow sat with his wife, eating soup with nine others in the same party. He told me:
- "Just as the orchestra was playing I heard, from my place near the stairs down to the 'Melody Lounge,' a commotion downstairs. It sounded as if tables were being overturned. Someone was screaming. The next moment, I saw two men rise hastily from the bar next door. Right above them I saw two flames of fire break out in the

ceiling above the stairs to the entrance. I pulled my wife by the arm and we ran first of all towards the door from the street where we had entered.

Mr John C Gill of Arlington was sitting with his wife at a dinner table at street level near the entrance. The first thing he noticed about the fire was a woman running past their table with her hair on fire. When he turned his gaze to the stairs down to the "Melody Lounge" he saw smoke and fire there. He realised that a fire had broken out downstairs, and he and his wife also managed to get out at the last moment before people crowded around the revolving door.



Exploded view of the Cocoanut Grove nightclub in Boston. The 1942 fire disaster claimed 492 lives. (From: Fire in America, Paul R Lyons, 1976)

Blocked and locked doors

Those in the "Melody Lounge" downstairs had barely more than a minute to get out without getting burned. Most of them only knew the stairs they had come down. But it was like a chimney where the flames spread upstairs. The narrow passage to the kitchen was known only to the staff.

A few managed to crawl out through a basement window before the flames broke out there too. Some made their way out through small windows to a toilet room in the basement. The only way out that remained was the same route used by the waiters. It went through two doors and a passage to the kitchen areas in the basement. From there, two more doors led to a staircase and then up to a staff entrance. The door there led to a back alley and was at the far end of the staircase where the flames from downstairs broke out. Once the locked door was opened after the crowding there, most of the survivors from both floors were able to get out that way.

At the far end of the entrance was the "New Cocktail Lounge" with a door to another street. But the door was inward-opening. As a result, it was blocked by anyone who intruded. Inside

that door, firefighters found about 100 dead, many lying on top of each other. Inside the main entrance with the revolving door, about 200 dead were found in the same way.

Quick firefighting - but still too late

A fire station unit had been on call in the next block when they received word of a fire at Cocoanut Grove. They arrived just minutes after the fire broke out. When they tried to enter from the street, it proved impossible. People were crowding out the two exit doors. Then the firefighters were blocked by all the bodies lying inside the doors.

The rescue operation was very difficult and complicated. A total of 22 fire and rescue vehicles arrived on the scene, led by the top chiefs of the Boston Fire Department.

The fire was extinguished in less than an hour. But it was a gruesome sight that greeted the firefighters as they entered the premises. When the smoke was blown out, the dead were found everywhere, but mostly at the blocked or locked doors.

Very large emergency medical response

Of the survivors, nearly 200 had burns or were smoke poisoned. About 150 were so badly injured that they needed hospital treatment. The efforts of many doctors, nurses, Red Cross and ambulance personnel saved many lives at the scene.

According to one report, an injured person was brought by ambulance to Boston City Hospital every 11 seconds. More blood plasma was needed for the injured than was used after the air raid on Pearl Harbour. 100 nurses and 500 assistants were called to the hospital.