



LOOKING BACK AT THE COCOANUT GROVE

On the night of November 28, 1942, fire swept through Boston's most popular night club, the Cocoanut Grove. In less than 30 minutes, the fire had traveled through the four main rooms, leaving 492 persons dead or dying. The magnitude of the tragedy was unparalleled in the United States and led to extensive investigations into its causes. These investigations not only revealed the technical causes of the fire and huge loss of life, but also hinted at a more deeply rooted problem: fire codes and their enforcement.

The Structure

The Cocoanut Grove was one of Boston's most popular night spots, featuring famed entertainers and often frequented by celebrities. The club was actually a group of four buildings connected on the ground floor. Located on Shawmut Street through the block to Piedmont Street and bordered on one end by Broadway, the site is now occupied by a hotel and theater.

The main building of the club was one-story and basement of reinforced concrete and brick masonry construction. It was originally a garage and motion-picture exchange before conversion into a night club at the end of Prohibition. The many extensions and alterations to the building ended in late 1942 with the opening of the new Broadway Lounge in a group of old two-to-three-story masonry buildings on Broadway. A passageway to the Main Dining Room connected the lounge to the main building.

The main entrance to the club was on Piedmont Street

This article is based on research by William Reinhardt as part of a seminar on Learning From Construction Failures at the Massachusetts Institute of Technology. Mr. Reinhardt is vice-president of Swenson Reinhardt Associates in Boston.

Above: The Shawmut Street side of the Cocoanut Grove the morning after the fire. The center door, which was partially opened during the fire, served as the emergency exit for many on the first floor.

through a revolving door opening into the foyer. From the left of the foyer, the lobby led past the check room and again turned left to stairs leading down to the Melody Lounge in the basement. To the right of the foyer was the Caricature Bar and straight ahead was the Main Dining Room.

Patron access to the newly opened Broadway Lounge was through a door on Broadway only and not through the connecting passageway. The basement also contained the Melody Lounge, the kitchen, and many storage rooms, while the second and third stories, which were over the Broadway section, housed dressing rooms for the employees and entertainers.

The Cocoanut Grove was virtually a rabbit warren of passageways and rooms. A brief description of these rooms is relevant here.

Foyer: The main access into the club was from Piedmont Street through a revolving door in the foyer. The walls were decorated with artificial leather over structural concrete, while linoleum covered the concrete floor. Exits from the foyer were the revolving door and a panic-fire door at the end of the lobby, at the head of the stairs leading down to the Melody Lounge. At the time of the fire, this panic-fire door was locked to prevent nonpaying customers from entering or leaving the club.

Caricature Bar: The Caricature Bar was raised two steps above the foyer and featured a 48-foot-long wooden bar faced with artificial leather. There were four casement windows behind the service bar facing Piedmont Street and a closed balustrade separated the raised section from the Main Dining Room. The means of egress were to the foyer, to the Main Dining Room, and into the passageway to the new Broadway Lounge.

Main Dining Room: Located on the Shawmut Street side of the building, the Main Dining Room was approximately 60 feet by 60 feet. Upon entering from the foyer, a raised terrace was to the left, dining/dancing floor was straight ahead, and a raised stage was to the right. Wood

vener covered all windows on the Shawmut Street wall. Although the roof above the Dining Room could be opened in summer by an automatic rolling device, fabric covered the ceiling. A door exited to Shawmut Street; stairs led down to the kitchen; another door near the stage led to a door on Shawmut Street or downstairs to the kitchen; another door opened to the foyer; and a passageway led to the Broadway Lounge. Only the Shawmut Street door and the foyer were anticipated as emergency exits.

Broadway Lounge: The 40-foot-by-40-foot Broadway Lounge was located in an older building on the Broadway end of the club. The Lounge itself was of plywood covered with artificial leather, and the floor was wood. The Broadway wall had windows of fixed glass block. Exits were located by the main Broadway door and by the passageway to the Main Dining Room. The upstairs housed the dressing rooms, which exited downstairs to Shawmut Street.

Melody Lounge: The 55-foot-by-35-foot Melody Lounge was in the basement. The walls were covered with rattan and wood, and the ceiling was of suspended fabric. Artificial palm trees with light fixtures in them decorated the Lounge. The octagonal bar was covered with artificial leather, as were the seats and chairs that filled the room. Stairs went up to the first-floor lobby (and then either to the locked panic-door or the main entrance). A door to the kitchen led to a door (locked on the night of the fire) that opened to the alleyway or to the Shawmut Street service door (also locked).

Previous Inspections

Eight days before the fire, the Boston Fire Department's Fire Prevention Bureau inspected the building. According to the inspection report, the club had sufficient exits and fire extinguishers. The inspector noted that the Broadway Lounge seated 100 people, the Main Dining Room and Caricature Bar 400 people. When tested with a match, none of the decorations ignited. The report stated "no flammable decorations" and concluded that the condition of the club was "good."

The Building Department had also recently inspected the premises, because of the construction of the new Broadway Lounge. The Building Commissioner had found the only error to be the absence of a steel fire door between the new Broadway Lounge and the Main Dining Room. The door had been ordered, but it had not been delivered. The new Lounge, however, was allowed to open even though the required certificate of inspection was not issued.

The Coconut Grove had also applied to the Licensing Board for a new license as a restaurant seating 460 people. An additional 30 seats for the new Broadway Lounge had also been requested, bringing the total occupancy to 490.

The Fire

On the night of November 28, 1942, the Coconut Grove was busy. The 1,000 people estimated to be in the club that night included many servicemen and their dates, as well as fans from the day's Boston College football game. The Main Dining Room was so full that tables and chairs were set up on the dance floor. The Caricature Bar, the Broadway Lounge, and the downstairs Melody Lounge were "standing room only." At about 10:00 pm, the stage show was about to begin.

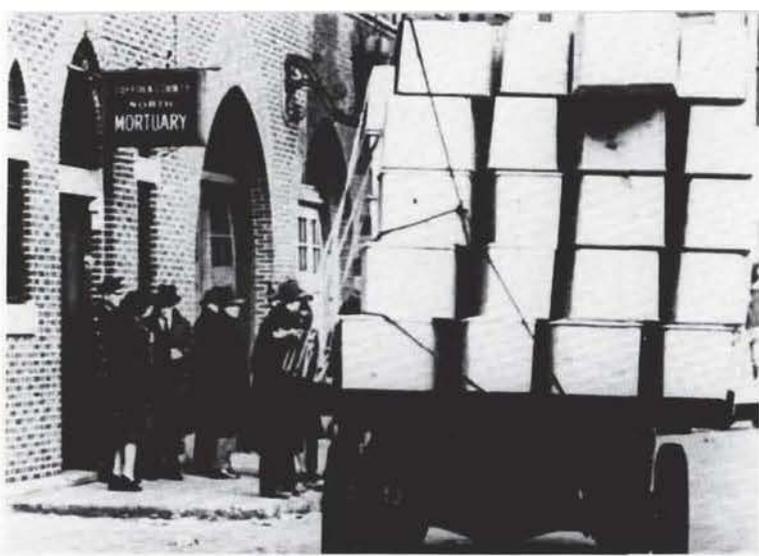
In the Melody Lounge, a young busboy lit a match to provide light while he replaced a fixture in an imitation palm tree. After fixing the light, he extinguished the match. A few moments later, someone noticed that the palm tree was on fire. Although the bartenders tried to extinguish the flames, the fabric ceiling was soon burning. The fire quickly spread along the entire ceiling of the Melody Lounge.

When occupants in the basement noticed the fire, they tried to escape up the stairs to the first floor. A bottleneck at the stairs slowed their escape. Some found their way into the kitchen after they could not get up the stairs, but many people were soon overcome by the dense smoke when they could not find the exits.

Meanwhile, the flames were rushing up the stairs to the foyer, 2 to 4 minutes after ignition. Many people collapsed on the stairs and the victims piled up. Occu-

One of the few artificial palms remaining in the Coconut Grove after the fire. Wiring was concealed in the foliage. NEPA





The Suffolk County Mortuary was one of several places where bodies of Coconut Grove victims were taken. NFPA

pants who did reach the first floor tried to use the panic-fire door, found it bolted, continued to the foyer, and tried to leave the building through the revolving door. A few managed to escape, but the door was soon blocked.

People in the Main Dining Room and the Caricature Bar noticed the commotion in the foyer and realized that there was a fire. Most attempted to leave the way they came in, by the foyer. This caused another massive jam, for the flames were now rolling into the foyer, the Caricature Bar, and the Main Dining Room.

At this time, the lighting system reportedly failed, plunging the club into darkness. Many patrons, seeing the uproar in the foyer, turned around and started across the Main Dining Room toward a door that was being opened on the Shawmut Street side. The hundreds of tables and chairs in the dining room hampered their progress. Most people were soon overcome by the dense smoke and did not reach the door.

Meanwhile, the occupants of the Broadway Lounge were unaware of events in the Main Dining Room. However, that quickly changed as smoke and flames went up the passageway and entered the Broadway Lounge, only 5 to 6 minutes after ignition had occurred in the Melody Lounge. The Broadway door, which opened inward, was the only means for escape and people rushed for it. The mass of pressing people soon made it impossible to open the door; few escaped through that exit.

Fire Service Response

By coincidence, the fire department had dispatched several units to a car fire only a few yards down the street from the Coconut Grove at roughly 10:15 pm. The fire fighters were about to return to the station when they heard cries for help and saw smoke coming from the Coconut Grove. The first alarm for the fire was called at

10:21 pm with third, fourth, and fifth alarms at 10:24, 10:35, and 11:02 pm respectively.

It was quickly apparent that rescue activities would be the fire-fighters' major mission. Suppression forces broke the windows on the Shawmut Street side and attempted to bring out occupants. Other fire fighters broke the heavy glass windows in the Broadway Lounge in an attempt to aid in their escape.

Fire fighters on the Piedmont Street side of the club were appalled by the mound of bodies behind the foyer door and began to pull bodies out to see if anyone was still alive.

Inside the building, the interior finishings and decorations were quickly consumed and the fire soon burned itself out. There was actually little structural damage to the building, due to the predominance of reinforced concrete and masonry construction.

Rescue operations went on nonstop. Fire fighters found over 200 bodies piled in front of the revolving door in the foyer and another 100 behind the Broadway Lounge main exit. Many occupants had died very quickly, without much sign of struggle. Commandeered taxis and private cars transported the injured to hospitals. Many of the injured later died, either from burns or massive lung damage.

Many Boston residents first learned of the fire at the Coconut Grove when local radio stations interrupted their programming with news bulletins. Soon radio announcers were reading the names of victims over the air, a process that continued throughout the night.

The Aftermath: Investigations and Theories

After the disaster, the press, government officials, and the general public demanded to know the cause of the tragedy. Several major investigations were started almost immediately. The NFPA conducted a probe into the causes of the fire, the reasons for its rapid spread, and the high loss of life. Fire Commissioner William Reilly of Boston and the Suffolk County Grand Jury conducted their own investigations.

The NFPA inquiry led to a report written by Technical Secretary Robert Moulton. The NFPA report concludes that the immediate source of ignition had little bearing on what happened later,¹ and addressed the possible factors contributing to the high loss of life. While not assigning responsibility because of ongoing legal proceedings, the report clearly identifies violations of the *Building Exits Code* (predecessor to NFPA 101, the *Life Safety Code*[®]) and *National Fire Codes*.

The report cited the importance of unobstructed exits

¹ Possible ignition of the artificial palm tree by the match held by the busboy was never conclusively proven.

[®] Reg. TM, The National Fire Protection Association, Inc.

and noted that exit doors must swing outward, compared to the inward Broadway Lounge door. The exits must be clearly visible (not concealed) and marked. Although the *Building Exits Code* stated the number of required exits for rooms of various capacity and use, one exit in the club (such as the foyer door) served many rooms. The report also raised the issue of sufficient exit lighting, which the Cocoanut Grove did not provide.

The NFPA *Exit Code* also prohibited the use of a revolving door as an emergency exit. Locked doors were another clear violation of the *Building Exit Code*.

The report also commented on the use of flameproofing chemicals on decorations. While some chemicals can make a combustible material resistant to a small flame such as a match, the report said, no chemical will make a combustible material resist a severe fire. The NFPA report concluded that the solution lay in eliminating the wholesale use of combustible decorative materials in places of public assembly.

According to Moulton's report, the Cocoanut Grove tragedy was not caused by deficiencies in firesafety laws. Proper enforcement of existing building and fire codes was needed, the report said. The NFPA report also emphasized the need for a clear demarcation of building department and fire department responsibilities in code enforcement. Finally, the report called for the application of codes to old, as well as new, buildings, and highlighted the need for fire inspector training.

The Boston Fire Commissioner also conducted an investigation and issued an independent report on the Cocoanut Grove disaster. That report called the fire of undetermined origin and agreed with the NFPA report that the chimney effect of stairways and draft from ventilators contributed to rapid fire spread. The large flame-over, according to the Commissioner's report, was caused by the partial burning of combustible material, producing highly flammable gases that ignited when combined with oxygen in the foyer and the Main Dining Room.

The Fire Commissioner attributed the high loss of life to many factors, including the extreme overcrowding of the Grove on the night of the fire. The locked door on Piedmont Street and jammed revolving door in the foyer accounted for many deaths. The failure of the lighting

system and the many overturned chairs and tables in the dining room resulted in confusion and delay, causing many additional fatalities. Curtains and decorations concealed unmarked exits, causing more deaths.

All recommendations in Commissioner Reilly's report related to new legislation, contrary to Robert Moulton's suggestions. For example, the Commissioner recommended a better definition for "place of assembly," along with the enactment of more stringent laws for that type of occupancy. A required certificate of safety, issued by the fire department and specifying the maximum number of people to be admitted, was proposed. Other recommendations included prohibiting the use of basement rooms as places of assembly (except under certain conditions), defining aisle space between tables and requiring tables to be affixed to the floor, and requiring lighted exit signs and an emergency lighting system.

After its legal inquiry, the Suffolk County Grand Jury issued criminal indictments against 10 people, including four city employees. For weeks, Boston newspapers provided detailed daily coverage of the trials, including transcripts of testimony and illustrations of the courtroom scenes. The Building Commissioner, the head of the Fire Prevention Bureau, and the fire inspector who had inspected the Cocoanut Grove eight days before the fire were each acquitted of charges against them. Charges against the police night captain, in the Broadway Lounge at the time of the fire on his rounds of nightclubs, were dropped.

Two of those indicted were convicted. The owner, Barnet Welansky, was found guilty of manslaughter and conspiracy to violate the building laws and sentenced to 12 to 15 years. The contractor who built the Broadway Lounge was found guilty of conspiracy to violate the building laws and was sentenced to two years.

The Impact

Forty years after the disaster, the name "Cocoanut Grove" is still associated with fire. To many in fire protection, the fire at the Cocoanut Grove symbolizes the need for strict enforcement of strong fire codes in places of public assembly. △

NFPA SCHEDULES SEMINARS

The NFPA will conduct two *Life Safety Code*® Seminars, as well as one Health Care #101 Seminar.

Life Safety Code Seminars have been scheduled for November 30–December 3 in Honolulu, Hawaii, and December 7–10 in Juneau, Alaska. The Health Care #101 Seminar will be held on December 20–21 at NFPA headquarters in Quincy, Massachusetts.

For additional information, contact: the NFPA, Division for Continuing Education, Batterymarch Park, Quincy, MA 02269 (617-328-9290).