

Fire! Three Case Studies in Ethics

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Abstract: On March 25, 1911, 146 people, mostly young immigrant women, working at the Triangle Shirtwaist Factory in the garment district of New York City burned to death in 15 minutes, locked in their workrooms on the eighth and ninth floors of Manhattan's Asch Building. On November 28, 1942, nearly 500 people died in one of the United States' worst fires, at Boston's popular Cocoanut Grove night club. And on February 20, 2003, 100 people perished in another night club fire, in West Warwick, Rhode Island. This paper presents the cases, examines common threads, and addresses ethical considerations. These cases add a different dimension to studies in ethics: most students assume that we learn from past mistakes. What these cases provide, however, is an illustration of Hegel's frequently quoted comment that "we learn from history that we do not learn from history."

Index Terms - Ethics, Triangle Shirtwaist Fire, Cocoanut Grove Fire, The Station Fire

INTRODUCTION

"Historical events," declares Czech novelist Milan Kundera in his *Book of Laughter and Forgetting*, "usually imitate one another without much talent" [1]. Is history, as Kundera suggests, a process of repetition, spawned by forgetting? An examination of three high-profile fires, separated in time by nearly a century, reveals striking similarities in both circumstances and ethics that substantiate Kundera's hypothesis and provide dramatic classroom examples.

THE CASES

Triangle Shirtwaist Factory

Saturday, March 25, 1911, was a beautiful day in New York City, with clear skies and warm weather. The Triangle Factory, owned by "Shirtwaist Kings" Isaac Harris and Max Blanck, occupied the top three floors of the steel-framed Asch Building and buzzed with activity, even at closing time. At 4:40 p.m., Isidore Abramowitz, a cutter on the eighth floor, noticed a tiny

flame in his scrap bin, the result, apparently, of a carelessly discarded match or cigarette. Despite a water dousing, the flame persisted, fed by fabric scraps and the tissue paper patterns that festooned the room. When the fire reached the airshafts, it exploded on the top two floors [2]. The tiny flame became an inferno, and in 15 brief minutes, 146 Triangle workers, aged 13-23, were dead, their bodies scattered throughout the factory's ninth floor and littering the sidewalks of surrounding streets.

Floor by floor. Workers in the eighth floor cutting room were lucky: all, save one, escaped, either by crowding into the 12-passenger elevators, clambering down the narrow staircases, or exiting via the flimsy fire escape.

Tenth floor shipping and office workers likewise escaped a terrible fate. Warned by a message sent by an eighth floor operator through the teleautograph, a primitive fax device, many fled to the roof. But the Asch Building was stories shorter than adjacent buildings. Their plaintive cries alerted Frank Sommers, a professor at nearby New York Law University [2]; he and his students lowered ladders to the roof and rescued 150 people [3].

Workers in the ninth floor sewing room, however, faced a grim fate. Trapped in a room overcrowded with 240 sewing machines affixed to seven 75' rows of tables, those who survived managed to squeeze through the sole open exit before the panicked crowd rendered the inward-swinging door inoperable. Escape by the stairwells meant running through a formidable curtain of fire, and the elevator was stalled at the ground floor, held fast by the weight of 30 women who, in desperation, jumped down the shaft. Operator Joseph Zito described the scene in chilling detail: "They kept coming down from the flaming floors above. Some of their clothing was burning as they fell. I could see streaks of fire coming down like flaming rockets" [2].

Some ingenious male employees formed a human bridge to the window of an adjacent building, and several women crawled across to safety. As panic set in, however, the weight of the fleeing workers collapsed the bridge, and all fell to their deaths [3]. Dozens more died as the fire escape collapsed, crashing through a glassed section of sidewalk into the building's basement, their flaming bodies igniting more fires [2].

Those remaining in the workroom were faced with a daunting decision: to be burned alive or to jump. Some 63 chose the latter, hurtling 85 feet to the pavement below. Firefighters

unfurled safety nets to no avail: the bodies hit with a force of 11,000 pounds, tearing through the nets and the sidewalks beneath [4]. Reporter William Shepherd, enjoying a stroll in the pleasant spring weather, watched the human downpour in horror: “Down came bodies in a shower, burning, smoking, lighted bodies, with the disheveled hair of the girls trailing upward” [2].

An hour later, it was all over. Inside, gruesome sights awaited the firemen: 19 bodies melted to a locked door [3], a heap of 50 who sought shelter in a dressing room, others strewn about the room, suffocated by heat and toxic fumes “so intense that they dropped where they stood as flowers might wither,” fire marshal Edward Beer later testified [2].

Aftermath. Triangle owners Harris and Blanck were all too familiar with fire; they were paying premium insurance rates due to involvement in four prior fires, including two at Triangle. The Asch Building itself had hosted seven fires [2]. But this fire was different, bringing to the forefront of public attention squalid working conditions and, more importantly, locked exits that doomed the ninth floor workers.

Two days after the fire, New York city officials opened an intensive, two-week investigation that resulted in the indictments of Harris and Blanck for manslaughter [5]. Three days after the fire, the Shirtwaist Kings re-opened Triangle at another location [3].

The trial began on December 4; as Harris and Blanck entered the crowded courtroom, they were greeted with shouts of “Murderers! Murderers!” from angry victims’ relatives. The court even brought in extra policemen to quell the disturbance [5].

Prosecutor Charles Bostwick called 103 witnesses, including Triangle employees [5]. However, Harris and Blanck had the savvy and finances to hire a brilliant lawyer, Max Steuer, whom *The New Yorker* described as “born to be a lawyer as Mozart was born to music” [2]. Using ingenious, albeit ethically slippery, logic, he managed to cast doubt on eyewitness testimony and convinced the judge to give the jury an impossible charge: not only were they to determine if exit doors were locked, but that Harris and Blanck knew they were [2].

After deliberating less than two hours, the jury delivered its verdict of not guilty. Exonerated, Harris and Blanck had a police escort out of the courtroom but were chased down a subway station by an angry crowd screaming for justice [2].

Twenty-three families filed civil suits for damages. Harris and Blanck collected \$200,000 in insurance for loss of the factory [3]. By the time suits were settled in 1914, each plaintiff received a payment of \$75 [4], a paltry sum to compensate for the loss of a life.

Cocoanut Grove

It happened in 12 minutes. Fire raced from the basement Melody Lounge piano bar upstairs, to the main floor lounge, greedily devouring the exotic South Seas decor. The lights failed, and women burst into torches as their elegant evening dresses exploded in flames. Hundreds stampeded in darkness for the only available exit, a revolving door, and were later found jammed in the door or heaped behind it in a 40-foot lifeless mass of entangled, incinerated limbs and torsos, many burned beyond recognition. When dawn broke on November 29, 1942, the trendy Cocoanut Grove, Boston’s brightest night spot, lay in smoldering ruins, with 492 dead and hundreds more languishing in hospitals, suffering from severe burns and acute respiratory distress.

Origins. For years, the fire’s origin had been attributed to 16-year-old busboy Stanley Tomaszewski, who had been asked to replace a light bulb in a faux palm tree, one of many in the atmospherically dark Melody Lounge. Unable to see the socket, Stanley lit a match and, so the legend goes, sparked a fire that quickly spread to the leatherette-covered walls and satin ceiling. Flames shot up the stairwell and exploded in a “fiery tidal wave,” engulfing guests in the main lounge [6]. For the rest of his life, Stanley was tormented by his actions on that night, although he insisted that he had carefully extinguished the match.

More recent investigations, however, have exonerated Stanley. In 1996, the National Fire Protection Association launched an investigation into the fire’s origin. Although results are not conclusive, the real cause of the fire was probably due to an electrical spark that ignited a leak of methyl chloride, used as a refrigerant in lieu of the war-rationed Freon. Investigators created computer models of the fire and studied survivors’ testimonies, focusing on the “sweet smell” and the bluish tinge to victims’ bodies, both markers of phosgene, a toxic gas released by burning methyl chloride. The refrigeration unit was located behind a false wall in the lounge, and the fire apparently started there [7].

Recipe for disaster. Brothers James and Barnett Walensky assumed ownership of the club in the late 1930s. James had a shady past, marked by alleged involvement in illegal gambling schemes, but Barnett was an attorney and deemed more respectable, although one of his major clients was mobster “King” Solomon, a former owner of the Cocoanut Grove who used it for money-laundering operations [6]. Under the Walenskys’ creative management, the club expanded and quickly became the locus of Boston night life, marked by extravagant—and highly flammable—tropical island interior decorations.

To ensure that no one would decamp without paying after a night of fun, egress was limited to one revolving door at the front

of the club; all other exits were either blocked, locked, or boarded up, including windows, the latter in response to wartime black-out precautions [6]. The building had no ceiling sprinklers, despite common knowledge as to their effectiveness [8].

In spite of flagrant fire code violations—including no emergency lighting or exit lights—Frank Linney, a Boston fire prevention lieutenant, inspected the Cocanut Grove eight days before the fire and pronounced, “in my opinion, condition of the premises is good” [9]. A contemporary estimation is more attuned to reality: “A better firetrap couldn’t have been designed” [10].

On the evening of November 28, business was booming. The building had an occupancy capacity of 460, but an estimated 900-1,000 revelers, including cowboy movie star Buck Jones, packed the bars and lounges [11]. In fact, there were so many people that waiters had difficulty maneuvering between tables. When the fireball erupted from the stairwell and the lights failed, patrons were not only burned but crushed in the stampede for the door. Others, however, were discovered still seated at their tables, killed instantly by inhaling toxic fumes emitted by the smoldering decorations. Victims were rushed to 22 area hospitals at the rate of one every 11 seconds [6].

Aftermath. An investigation began the next day and continued for nearly three months. Some of the more startling findings included an illegal wiring system that had been installed in the first-floor Broadway Lounge by an unlicensed electrician and 4,000 cases of liquor, without required tax seals, that were secreted behind a trapdoor in the ceiling. In addition, chemical tests revealed that none of the club’s lavish furnishings were fire resistant [6].

In the face of public outrage, the Welanskys and nine others were indicted on charges of manslaughter and reckless conduct, and a three-week trial ensued, with over 300 witnesses testifying. In a novel attempt to circumvent allegations of safety violations, Barnett’s attorney, Herbert Callahan, suggested that patrons were actually responsible for their own deaths because they panicked: “Once panic strikes, safety devices mean nothing at all. They are virtually useless” [6].

Prosecutor Frederick Doyle, in his closing remarks, insisted that the ultimate cause of the fire was greed: “They were not content with an income of \$1,000 a night. They blocked up an exit with a coat rack at a dime a head. There wasn’t a penny to be lost. It was absolute greed and avarice.... Instead of advertising their ‘breathless’ cocktail lounge, they should have advertised ‘Come to the Grove and abandon hope’” [6].

Barnett was the only defendant convicted, and he served less than four years of a 12-15 year sentence, dying of cancer two months after his release. By 1944, survivors and victims’ families had filed over 400 lawsuits, but dwindling assets yielded an award of only \$150 to each family [12].

The Station

All of this sounds depressingly familiar by now: an overcrowded room, blocked exits, flammable furnishings, and one new element: a highly flammable foam insulation on the sound stage, to help prevent the pounding rock music from leaking out into a residential neighborhood in West Warwick, Rhode Island.

A fatal error. The Station, a low, wood-framed structure built in the 1950s, originally served as a watering hole for World War II vets. It changed hands seven more times before being purchased in 2000 by the Derderian brothers: Michael, an insurance and stock broker, and Jeffrey, a television news reporter. Located in a residential neighborhood, The Station, with its ear-splitting rock music, was the subject of frequent noise complaints. The music, in fact, was so loud that it literally rattled the windows of nearby houses. To squelch complaints, the Derderians installed foam insulation behind the stage area. However, rather than buying fire-retardant acoustical soundproofing foam, they purchased, for half the price, egg-crate polyurethane packaging foam, with the explosive power of 13 gallons of gasoline [13]. It was a terrible mistake.

On the evening of February 20, 2003, 360 people crowded into the small building, which had an occupancy capacity of 300 [14], waiting for the 1980s heavy metal band, The Great White, to appear. Earlier in the day, band tour manager Daniel Biechele had set up a pyrotechnics display to accompany the band’s first number. At 11 p.m., he lit the fireworks, and three 15-foot plumes of sparks showered the band and stage, igniting the volatile insulation. The pyro display was too close to the back of the stage, and it took only 24 seconds for the flames to race up the walls and ignite the ceiling; within three minutes, the entire structure was engulfed in flames, and dense, black smoke poured from the stage area. The burning foam spewed toxic fumes that included cyanide and carbon monoxide. Later, inspectors would estimate that patrons had only 43 seconds to escape [15].

Although the club had four exits, including two in the back, the panicked crowd surged forward. The dense smoke obscured lighted exit signs, and the stage door had an illegal inward-swinging door, preventing egress. Windows were blocked by pool tables that had been moved against the walls to allow for more floor space, and ceiling-mounted fans helped push the smoke into the room [15].

At the front door, someone tripped and fell, and, in an accordion effect, those behind “just piled up like cordwood.” The fire reached the structure’s ductwork, and, according to a forensic specialist, “created its own little storm in there” [15]. When the flames finally died, the building was destroyed and 100 patrons lay dead, a heap of 25 near the front door. Another 200 were in area hospitals, suffering from burns and lung damage.

Aftermath. The case has yet to be resolved. However, the

Derderian brothers and Biechele have each been indicted, charged with 100 counts of manslaughter. Biechele pleaded guilty in February 2006 and faces a possible 10 years in jail [16]. The Derderians have yet to face a jury. One major piece of evidence will surely be the work order on Biechele's laptop, with the "pyro" box checked [15]. The Derderians claim they gave no such permission.

COMMON THREADS

After the Triangle fire, New York fire chief John Kenyon stated that he believed that "no life would have been lost" if the factory had an automatic sprinkler system [17]. A century later, fire chief Larry Hall declared, "If there were sprinklers in [The Station], we wouldn't be here right now" [18].

In all three fires, safety precautions that could have saved hundreds of lives were ignored. These ranged from physical mechanisms—sprinklers, emergency lighting, clearly marked functioning exits—to preventative measures, such as conducting fire drills and meeting occupancy limitations. Harris and Blanck, for example, refused to pay \$5,000 for a sprinkler system and flatly rejected the possibility of establishing fire drill procedures [18], silently affirming the statement of another business owner: "Let 'em burn. They're a lot of cattle anyway" [3].

In Boston and West Warwick, building codes did not require sprinklers: The Station was too small and built before 1976, and the Cocoanut Grove owners simply ignored safety codes defining room capacity, door type, and exits [6]. Had they paid more attention to these details, nearly 500 people would still be alive.

The physical conditions of the three sites also fed the hungry flames. At Triangle, fabric and pattern scraps accumulated in bins for two months before being hauled away by rag trader Louis Levy, a ton at a time [2]. The flammable decorations at Cocoanut Grove and the volatile foam at The Station not only helped spread the flames, but the toxic fumes released felled many in their tracks. And, of course, overcrowding was a major factor, especially in the nightclubs, as hundreds ran for their lives. The ninth floor at Triangle was so crowded with tables that workers seated at sewing machines in the middle of the room had no chance for survival [2].

In 1903, a fire at the Iroquois Theatre in Chicago killed 602 people, mostly women and children. In its wake, the city of Chicago passed new fire safety regulations to prevent such a catastrophe from recurring [19]. Eight years later, the Triangle factory went up in flames. New York City, like Chicago, also developed new fire codes. The pattern is consistent through Cocoanut Grove and countless other fires. Undoubtedly, West Warwick will also amend its fire code. However, University of Kentucky law professor Robert Lawson, who has studied nightclub fires, remains skeptical. Citing the common problems

of flammable wall coverings, overcrowding, and locked or obscure exits, the situation was, he noted, "as if Cocoanut Grove had never happened" [20].

All of these fires have much in common, and, according to newspaper accounts, the problem lies with lack of enforcement of regulations and an increasingly shorter public memory. In 2004, one year after The Station fire, Massachusetts state fire marshal Stephan Coan expressed concerns about public amnesia: "We live in a world of 30-second sound bites. Think of September 11. How often is it really talked about now? I'm fearful that the 30-second sound bite world we live in will make The Station fire a distant event soon" [21].

ETHICAL CONSIDERATIONS

These cases involve a number of ethical issues, one of the most significant being lax inspection. All three sites passed fire inspections shortly before the fires. At The Station, inspectors somehow managed to overlook the foam insulation, which was not only highly flammable but had been illegally installed, glued on by the owners themselves, and did not meet code [13]. Exits lights had burned-out bulbs [22], and a fire extinguisher near the stage had been tucked into a closet, due to a broken wall bracket [13]. The Derderians had never applied for a pyrotechnics permit, even though they had hosted other shows that used fireworks. Perhaps the required \$1 million bond [23] was a disincentive.

The Cocoanut Grove passed inspection a mere eight days before the fire. Inspector Frank Linney even tried to set a faux palm alight. When it did not burn, he proclaimed the decorations non-flammable [6]. He failed, however, to notice boarded-up windows, blocked exits, faulty wiring in the Broadway Lounge, and, most significantly, the puddle of refrigerant accumulating on the basement floor.

At Triangle, the inspection oversights were so egregious as to be, were it not for loss of life and the trauma to New York's collective psyche, a comedy of errors. Insurance inspector Peter McKeon expressed concern about the locked exits and recommended fire drills two years before the fire [2]. No one, however, commented on the narrow, rickety fire escape that would hold, at best, two people, or the decomposing fabric on internal fire hoses and frozen water valves, or the 33-inch wide spiral stairways and tiny elevators that would make mass evacuation of hundreds of workers virtually impossible. In fact, not one New York City fire truck had a ladder that would reach beyond seven stories, despite a turn-of-the-century building boom that yielded 800 new "loft" buildings standing 8-20 stories high [2].

The Asch Building, in fact, barely met New York City building codes. Had the floor space been slightly grater, another

exit staircase would have been required; had the building been slightly taller, another fire escape would have been added, and the wooden floors, trim, and window frames would have been replaced with concrete and metal. In two respects, building designers failed to meet code: the fire escape ended over a skylight and a major exit door swung inward [24].

Building codes, however, are minimal expectations, and history is littered with examples of technology outpacing regulations. The Titanic sank the year after Triangle burned, and it too met minimal expectations; in fact, the Titanic had more lifeboats than required by the British Board of Trade. Just meeting the letter of the law is insufficient. Triangle owners Harris and Blanck had a moral obligation to provide for the safety of their workers, and they simply failed to do so. Fat wallets were more important than human lives.

Using engineering ethics codes to examine these incidents is enlightening and also serves as a useful classroom exercise. Triangle-era codes, such as the one developed by the American Institute of Consulting Engineers, focus solely on individual behavior and interactions between engineers and clients. The 12 clauses detail caution in financial arrangements, conflicts of interest, and competition, especially in regards to bidding [25]. Safety of workers and the general public is not addressed, and the field of safety engineering did not exist then. And while the building itself was deemed fire resistant, the contents certainly were not. Inspectors' recommendations regarding fire safety measures were ignored, as they were not legally enforceable.

A decade later, a joint committee comprised of mining, metallurgical, civil, mechanical, electrical, and HVAC engineers released a report recommending an improved ethics code. Contrary to its predecessor, this code would include a clause addressing the public good: "[The engineer] will interest himself in the public welfare in behalf of which he will be ready to apply his special knowledge, skill and training for the use and benefit of mankind" [26]. Designers of the Cocoanut Grove's structure and interior furnishings should have been accountable to this code, although, due to the political ties of the Welanskys, infractions were ignored. Business proceeded as usual, despite what, in retrospect, were glaring violations.

While the engineers who designed the Asch Building are to be forgiven, to a degree, because codes in 1911 did not specifically mention public welfare, designers of The Station fall under the auspices of contemporary codes, all of which mention as primary the duty to protect the public health and welfare. These include the code of the Society of Fire Protection Engineers. Working in concert with structural engineers, architects, and inspectors, fire protection engineers are responsible for maintaining safety in public structures. Why The Station was allowed to continue operations, given the extent of the violations and probable danger to occupants, remains a

mystery that will hopefully be revealed during court proceedings.

Professional codes, explain Harris, Pritchard, and Rabins, actually represent an agreement with the public regarding behavior; codes "articulate shared standards" [27]. The Derderians broke that agreement by creating an environment that invited fire and endangered lives.

The overriding ethical issue in all three cases is greed. Triangle employees toiled 52 hours a week, sometime from 7:30 a.m. to 9 p.m. in sweatshop conditions for as little as \$5 [2]. Children were illegally hired to snip extra threads from the blouses and then tucked away in rag bins when inspectors visited the factory [3]. Harris and Blanck routinely locked exit doors and searched employees to prevent theft, even though total losses amounted to less than \$25 [5]. After the fire, the Shirtwaist Kings collected an insurance settlement nearly \$65,000 in excess of the factory's worth. They actually profited from death, to the tune of \$445 per victim [3].

The Welanskys likewise profited from legal violations and ethical indiscretions. Due to political pull, "an in with the mayor," their taxes on the Grove were reduced 50 percent [12]. By blatantly ignoring occupancy limits, they could double their nightly income [6]. It was, as Prosecutor Doyle mentioned, avarice run rampant. Unlike Harris and Blanck, however, Barnett voiced some remorse, declaring on his release from prison, "I wish I'd died with others in the fire" [12].

The profit motive was equally intense with the Derderians. They bought inappropriate foam insulation for half the cost and then installed it themselves. In doing so, they circumvented both city building codes, which banned the use of flammable material in public places, and state fire safety codes, which required the owners to produce, on demand, the manufacturer's rating for the insulation. Jeffrey was well aware of the foam's volatility; two years earlier, in a news story for Boston station WHDH, he described the material as "solid gasoline." In addition, they had contracted The Great White and packed the club in an attempt to recuperate some of the \$65,000 they had paid for a new sound system [13]. While the Derderians' pecuniary interests were not as pronounced as those of Harris and Blanck or the Welanskys, they were certainly looking for profit. As Gary Briese, executive director of the International Association of Fire Chefs, commented after the fire, "It's about money and politics. There's a constant struggle between protecting the public versus the desire to make money—that's the reality of the world" [14].

CONCLUSIONS

Fire technology focusing on public safety certainly predated the construction of the Asch Building [2]. Had they chosen to implement it, Harris and Blanck could have equipped their factory with firewalls, automatic sprinkler systems, and a host of

other mechanical aids that could have delayed the fire's spread, giving workers time to exit the building; those on the ninth floor needed only three minutes' warning to escape the flames [2]. The same is true in Boston and West Warwick; sprinklers would have saved the patrons from horrible deaths or life-altering disfigurement and physical impairment.

"The greatest temptation when assessing a tragedy," writes Stephanie Schorow of the Cocoanut Grove fire, "is to infuse it with meaning, to promote the belief that something so bad must be a step to a greater good" [6]. Humans are an optimistic species: we like to think that we learn from the mistakes of the past, that good comes from evil, that we can somehow make our world a better place. Examining these three fires, however, yields the opposite conclusion. When Triangle burned, there was enormous publicity, and people thought the fire would be remembered forever [2]. In fact, that memory was short-lived; rather than learning from the past, we actively recreate it: "There is nothing really new," suggest *Firehouse* writers Brannigan and Carter. "We must re-learn the same lessons every generation or so" [28].

REFERENCES

1. Kundera, Milan. *The Book of Laughter and Forgetting*. London: Penguin, 1980.
2. Von Drehle, David. *Triangle: The Fire That Changed America*. New York: Atlantic Monthly Press, 2003.
3. Pence, Patricia Lanier et al. "And All Who Jumped Died: The Triangle Shirtwaist Factory Fire." *Management Decision*, 41, no. 4 (April 2003): 407-21.
4. Wallechinsky, David, and Irving Wallace. *Natural Disasters: New York's Triangle Shirtwaist Fire, Part 2*. 1975-81. Retrieved from <http://www.trivia-library.com/b/natural-disasters-new-york-triangle-shirtwaist-fire-part-2.htm>.
5. Linder, Doug. *The Triangle Shirtwaist Factory Fire*. 2002. Retrieved from <http://www.law.umkc.edu/faculty/projects/ftrials/triangle/triangleaccount.html>.
6. Schorow, Stephanie. *The Cocoanut Grove Fire*. Beverly, MA: Commonwealth Editions, 2005.
7. Beller, Doug, and Jennifer Sapochetti. "Searching for the Answers to the Cocoanut Grove Fire of 1942." *NFPA Journal* 86 (May/June 2000): 84-92.
8. Moss, Michael. "Nightclubs Are Notorious in Annals of Tragedy." *New York Times* (February 23, 2003). Retrieved from http://www.rmi.gsu.edu/rmi/faculty/klein/RMI_3500/Readings/Other/Safety_Nightclubs.htm.
9. Wallechinsky, David, and Irving Wallace. *Natural Disasters: The Cocoanut Grove Fire in Boston, Part 1*. 1975-81. Retrieved from <http://www.trivia-library.com/b/natural-disasters-the-cocoanut-grove-fire-in-boston-part-1.htm>.
10. Wallechinsky, David, and Irving Wallace. *Natural Disasters: The Cocoanut Grove Fire in Boston, Part 2*. 1975-81. Retrieved from <http://www.trivia-library.com/b/natural-disasters-the-cocoanut-grove-fire-in-boston-part-2.htm>.
11. *Rhode Island Fire Disaster Recalls Memories of Cocoanut Grove: The Parallels with Today's Headlines Are Haunting*. May 2003. Retrieved from <http://www.massretirees.com/members/rhodeislandfire0503.html>.
12. Thomas, Jack. "The Cocoanut Grove Inferno." *Boston Globe* (November 22, 1992): 1.
13. Farragher, Thomas. "Deception, Missteps Sparked a Tragedy." *Boston Globe* (June 8, 2003): A1.
14. Johnson, O'Ryan et al. "Nobody Had a Chance." *Eagle Tribune* (February 22, 2003). Retrieved from http://www.eagletribune.com/news/stories/20030222/FP_001.htm.
15. Farragher, Thomas. "Series of Errors Sealed Crowd's Fate." *Boston Globe* (June 9, 2003): A1.
16. *Band's Manager Pleads Guilty to 100 Counts of Involuntary Manslaughter*. February 20, 2006. Retrieved from <http://hr.blr.com/display.cfm?id=17849>.
17. Davis, Hadley. "Reform and the Triangle Shirtwaist Company Fire." *The Concord Review* (1998): 1-12.
18. *At Least 96 Killed in Nightclub Inferno*. February 21, 2003. Retrieved from <http://www.cnn.com/2003/US/Northeast/2/21/deadly,nightclub.fire/>.
19. Brandt, Nat. *Chicago Death Trap: The Iroquois Fire of 1903*. Carbondale: Southern Illinois University Press, 2003.
20. Bayles, Fred, and Rick Hampson. "Disasters at Clubs Repeat

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- Tragic History.” *USA Today* (February 24, 2003). Retrieved from http://www.usatoday.com/news/nation/2003-02-23-nightclubs-usat_x.htm.
21. Doherty, John. “Fire Safety Laws Slow to Change.” *South Coast Today* (February 15, 2004). Retrieved from <http://www.southcoasttoday.com/2-04/2-15-04/a011o071.htm>.
 22. Carovillano, Brian. *Fire Inspectors Spotlighted in Investigation of Night Club Fire*. March 4, 2003. Retrieved from http://www.boston.com/news/daily/04/nightclub_fire_inspectors.htm.
 23. Mashberg, Tom. “Employee Warned R.I. Club of Pyro Use.” *Boston Herald* (February 25, 2003). Retrieved from <http://knac.com/article.asp?ArticleID=1816>.
 24. “The Triangle Shirtwaist Fire Trial: Building and Safety Laws.” n.d. Retrieved from <http://www.law.umkc.edu/faculty/projects/ftrials/triangle/trianglescodes.html>.
 25. American Institute of Consulting Engineers, Inc. *Code of Ethics*. 1911. Retrieved from <http://www.iit.edu/departments/csep/codes/coe/American%20Institute%20of%20Consulting%20Engineers%20code%20of%20ethics.html>.
 26. Newell, Frederick Haynes. “Ethics of the Engineering Profession.” *Annals of the American Academy of Political and Social Science*, 101 (May 1922): 76-85.
 27. Harris, Charles E. et al. *Engineering Ethics: Concepts and Cases*. 2nd ed. Belmont, CA: Wadsworth, 2000.
 28. Brannigan, Francis L., and Harry R. Carter. “Fire Disasters: What Have We Learned?” *Firehouse Magazine* (September 1998). Retrieved from <http://www.firehouse.com/magazine/american/disasters.html>.