

**THE CAUSE AND ORIGIN**

**OF**

**THE COCOANUT GROVE NIGHT CLUB FIRE**

**A NEW HYPOTHESIS**

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MEMORANDUM TO FILE

Subject: Revised Hypothesis On "Cause and Origin" of Cocoanut Grove Night Club Fire -- Methyl Chloride as "Initial Accelerant"

On Sunday, March 25, 2007 I acquired a copy of the recently-published book, "RESCUE MEN", by Charles Kenney. This volume chronicles the accomplishments of three members of his family, all "Rescue Men" with distinguished records of service in what is, arguably, probably the most dangerous specialty in the fire service.

His grandfather, Charles Kenney, Sr. (known as "Pops") was one of the first Boston firefighters on the scene at the Cocoanut Grove Night Club Fire on November 28, 1942. He personally saved many lives of those trying to escape from the Main Dining Room, on the Shawmut Street side exit, and had to retire from the service due to the injuries he personally sustained. For the remainder of his life he was very interested in the "cause and origin" of the fire -- which was never officially determined, even to this day.

His father, Charles Kenney, Jr. (known as "Sonny") served in the Submarine Service in WW II, joined the Boston Fire Department after a period of college, and also became, in due time, a Rescue Man until a ladder gave way on him at a fire, causing him to fall. His injuries required him to also retire from the fire service and when he recovered, went into business. He always retained his many connections with the Boston Fire Department, and as a hobby became the appointed "unofficial historian of the Cocoanut Grove Fire." He too, like his father, became intrigued to the point of obsession about the undetermined "Cause and Origin" of the fire.

As described in "RESCUE MEN", pp. 290 - 298, when I first met Charlie Kenney in April, 1996 and learned about his Methyl Chloride as Initial Accelerant hypothesis we joined forces, so to speak, to try and verify this possibility - and finally resolve the Cause and Origin mystery of the Cocoanut Grove Fire. Our joint efforts toward this end are well covered in the book. Yet, with all the facts, testimony, and reports - and the participation of the NFPA - which seemed to support the hypothesis, one nagging point against it prevented professional fire engineering acceptance of the idea. Methyl Chloride has a specific gravity of 0.92 and a vapor density of 1.74. In its gaseous state it has a tendency to first rise when it is released from a condenser and then, since it is somewhat heavier than air, to gradually drop to the floor as it cools.

Dr. Edward Clougherty, chief chemist for the Boston Fire Department, has consistently ruled against the Methyl Chloride hypothesis on the grounds that the initial outbreak of fire in the Melody Lounge, and its rapid spread up the stairs and into the other areas of the Grove was primarily at ceiling level and not from the floor as the physical characteristics of this substance would dictate. This has been the conventional wisdom of the professional fire engineers - seemingly unassailable - for the last 64 years.

## II.

As I read the account of the outbreak of the fire in the Melody Lounge, an exercise I have engaged in countless times over the last 15 years or so reading testimony of witnesses, books, and stories from many sources, I was struck by an eyewitness description, as follows: "Then a shimmering blue flame formed a smooth arc on the ceiling fabric. The arc began to move--surprisingly swiftly--and as it did so, smoke and burning bits of fabric suddenly dropped onto patrons. Layers of smoke folded over one another, descending on the people in the bar...But the fire gained strength and speed, seeming to race the throng to the stairway. The stairway was acting like a funnel--a chimney of sorts--propelling the fire along".

"As it emerged at the top of the stairs, on the main floor of the Grove, it was no longer a flicker of blue flame, no longer an incandescent wisp, a simple arc: it had become a ball of flame, yellow and blue, speeding forward up around ceiling level. Some how a demonic, otherworldly force had been created. This was no ordinary fire. Something incredible was happening here. 'Nothing about that fire was normal,' a news reporter later observed, 'not its terrible speed, not its mysterious fumes, not its strange twists of fate that left some without a scratch and others to die horrible deaths.'"

The National Fire Protection Association later calculated that the fire raced 400 feet through the club in 6 or 7 minutes.

Oddly enough, I had recently watched a hot air balloon convention which featured a large number of brightly colored balloons sailing majestically across a desert area, probably in Arizona. Then a thought occurred to me: There was a false ceiling in the Melody Lounge, a dark blue "satiny" fabric, tacked onto light wood strips, this was 16" below the "real" concrete ceiling of the room, and about 10 feet above the floor.

The fabric balloons were certainly able to contain a large quantity of hot air to enable them to ascend into the atmosphere. Was it not possible that the "satinized" fabric that covered the Melody Lounge ceiling height be able to contain a considerable amount of Methyl Chloride gas in the 16" area to the "real" concrete ceiling. The Melody Lounge was approximately 65' long by 30' wide, or about 2275 ft<sup>2</sup>. Adding the 16" airspace above the fabric ceiling, gave an area of about 3,026 ft<sup>3</sup> where Methyl Chloride gas could easily collect and, given the right conditions, be ignited with the disastrous effects previously noted.

Photographs of the rough wood plank decorative wall in the Northwest corner of the Melody Lounge show "feathering" char patterns between a number of the planks. According to Fred Klages of the National Fire Academy, these were caused by Methyl Chloride burning behind the false wall prior to the major outbreak of the fire at the ceiling level indicated by the "flash" John Bradley, and other bartenders, saw and tried to combat with seltzer bottles in the vicinity of the palm tree in the Northwest Corner--a futile effort.

A triangular piece of plywood, set on top of the plank walls in the Northwest corner, directly above the decorative "palm tree", was found to be heavily charred on top, and virtually unscathed on the bottom where the palm tree was. Obviously the flames came from behind the plank wall into the air space where the decorative fabric ceiling created the "bottom" or "floor" for the gas.

### III.

One of the last items of testimony presented by the state at the trial of Barnett Welansky was the following statement by Philip W. Deady, State Detective, on April 1, 1943: "Describe the palm tree in the corner," he was asked.

"Its upper leaves were flush with the shelf above on which was the loud speaker," he said.

"And what did that create above the shelf?" "An air chamber between the shelf and the ceiling."

The state then rested.

Behind the false wall in the Northwest corner was a "Fan Compressor Room" containing a refrigeration unit of approximately 5 tons capacity. It had a separate electric-driven compressor and a separate water-cooled receiver condenser, approximately 4 to 5 feet long, with an 8-inch diameter cast-iron shell. The refrigerant, approximately 20 to 50 pounds of methyl chloride had been "drawn down" into the condenser for storage in the winter months when the unit was not operating and secured with valves. Also inside the condenser were a stack of iron cooling water pipes (not operating) which terminated at an open drain to the city sewer system, which was located close to the ceiling level.

This refrigeration condenser was removed from the Coconut Grove fire scene shortly after the fire. It was examined on the loading dock of the company that serviced the unit in early December. The stack of cooling water pipes showed considerable pitting, corrosion, and some holes.

Apparently, some time shortly prior to the outbreak of the fire in the Melody Lounge the methyl chloride refrigerant leaked into the dry water pipes, exited into the Fan Compressor Room (and probably the air space behind the Western wall of the Lounge, as well.) At the same time it is also probable that the gas spread out into the air space above the fabric ceiling, since the open drain was very close to the top of the false wall. There was much wiring in this room.

The total area of the Fan Compressor Room was: 10' long x 5' wide x 11.3' high; the waste space behind the Western wall was: 28' long x 2' wide x 11.3' high. Total area of these spaces is 2328 ft<sup>3</sup>

The area of the space between the "real" concrete ceiling and the fabric ceiling totals 3,026 ft<sup>3</sup>. Total estimated area where the Methyl Chloride gas could stealthily accumulate until accidental ignition occurred from a short circuit was about 5354 ft<sup>3</sup>.

There was evidence of such a short circuit in the Fan Compressor Room, as determined by Harrison C. Witherell Secretary of the State Board of Examiners of Electricians. Shoddy wiring, and overfused circuits were located in many areas of the Coconut Grove. My father, Lt. Detective, MSP, and lead investigator of the fire, told me that he had personally seen evidence of a large short circuit on a heavy-duty power wire in the Fan Compressor Room.

#### IV.

Methyl Chloride gas is usually flammable, with an ignition temperature of 1,170°F. It was, and probably still is, a common practice for refrigeration service technicians to "burn off" excess gas that has leaked out during maintenance or installation of a system. Usually the result is a low-level blue flame which is harmless unless it comes in contact with other flammable material. This type of combustion usually occurs on the floor level of the room.

At certain concentrations of 8.1% to 18.7% mix of gas to air methyl chloride becomes extremely flammable, and even violently explosive. In the case of the Melody Lounge massive outbreak of fire it is questionable as to whether the "mix" was exactly in that range. Yet testimony had indicated there was what has been described as a "Whoosh" coming at ceiling level triggering the rapid expansion of flame across the fabric ceiling covering--which was rapidly consumed with layers of heavy dark smoke roiling down into the lounge.

All the existing evidence indicates that the fire moved with incredible rapidity, at ceiling level, toward the staircase and upward into the main level of the Grove. As it gained an increased supply of oxygen it expanded very rapidly into a yellow and blue fireball engulfing the entire building. Again the main area of fire was at the ceiling level, expanding downward toward the floor, according to the testimony of most knowledgeable observers. The results of this phenomenon are now the history of the Cocoon Grove, in which 492 victims were killed, and approximately 166 were injured.

In the Melody Lounge and all other areas of the Grove: Foyer; Caricature Bar; Main Dining Room; Broadway Lounge; and Kitchen many died, or were hospitalized, for fatal and/or severe respiratory problems. Chemical analysis of methyl chloride indicates human exposure to the "raw" gas itself can cause narcosis and brain swelling, without the victim being aware of it. Methyl Chloride's combustion products include: Phosgene (the "Mustard Gas" of WW I, and very deadly); hydrogen chloride; carbon monoxide; and carbon dioxide.

It is apparent that Methyl Chloride is a highly volatile substance with many undesirable characteristics injurious to humans in confined spaces. It seems incontrovertible that this gas was not only the "Initial Accelerant" for the fire, but its byproducts of combustion were present throughout the building, along with those of other burning decorations, drapes, fixtures, etc.

It is well-known that, at 10:00 PM, the night of November 28, 1942, the Melody Lounge was crowded with approximately 150 patrons and staff - some have said overcrowded. The outside weather was cold; the heat was on; and the body heat of the crowd made the place very warm. Incidentally, warm ambient temperature has been known to inhibit methyl chloride from falling down toward the floor--and may well have helped to keep it up between the fabric false ceiling and the concrete real ceiling, as described previously.

Testimony of several patrons prior to the outbreak of the fire said that the "walls were too hot to touch", indicating that low-level burning of the refrigerant in the closed Fan Compressor Room, and the dead space behind the Western wall of the Lounge were already well underway.

\* Note: I am of the strong opinion that a serious escape of the Methyl Chloride gas occurred within less than an hour prior to the main outbreak of the fire -- not a long "seepage" into the wall and ceiling areas. The raw gas would certainly have caused discomfort to the patrons in the Melody Lounge, and been noticed.

V.

At 10:12 PM Stanley Tomazewsky, busboy, tightens light bulb in palm tree in Northwest corner which had been loosened by a patron. He lit a match to find the socket and subsequently extinguished it safely. Later examination of underside of the plywood shelf at the top of the "palm tree" showed no evidence of burning or charring. The top of the shelf, however, was deeply charred. This is prima facie evidence that there was no relationship whatsoever that Stanley was responsible for the ignition of the fire in the Melody Lounge. Over his lifetime he was persecuted for an "accidental crime" he did not commit. He has passed away. R.I.P. And regrets for what his family has had to live with over many years.

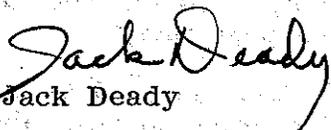
At 10:15 PM a burst of flame came over the top of the false wall and the ceiling of the Lounge rapidly became totally involved, as previously described in this report.

The facts, as I have considered them, seem to indicate that the methyl chloride gas entrapped in the ceiling of the Lounge burned rapidly--but not completely--due to insufficient oxygen in the crowded Lounge. This buildup of pressure on a significant amount of volatile gas seeking oxygen caused it to push toward the staircase of the Lounge--a natural "chimney". Exhaust fans in the Lobby, Caracature Bar, and Main Dining Room created enough of an updraft to attract the mass of partially-burned gas out of the Lounge, and giving it the oxygen it needed to become the now-legendary disastrous yellow and blue "Fireball" which destroyed the Grove and the hundreds of patrons and staff. The Grove became, in effect, a crematorium, and a monument to human greed.

Unless I hear a hypothesis that makes more common sense than this set of scenarios, I will offer this effort to scrutiny of fire and engineering professionals as a realistic set of possibilities to determine, after 64 years, the true "Cause and Origin" of the Cocoonut Grove Night Club Fire.

With many, many thanks to my friend, and fellow fire historian, Charles Kenney, for getting me involved in this "quest" and, of course, to my Dad, Philip W. Deady, Lieutenant Detective Inspector, Massachusetts State Police and the lead investigator of the fire for the State Fire Marshal, Stephen C. Garrity and Attorney General Robert T. Bushnell. They sought the truth, despite threats.

It was a rare set of circumstances that resulted in the conjoining of many pieces of information held by Charley Kenney, Rescue Man, BFD, and myself who had access to different types of information left by my Dad, whose investigation, courage, and good work led to the conviction of the owner of the Cocoonut Grove, Barnett Welansky, in April, 1943. And also to Walter Hixenbaugh, who verified the existence of Methyl Chloride in the refrigeration unit, and its unique properties, which created the Cocoonut Grove holocaust. To the victims, R.I.P.

  
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