On the morning of November 26, 1957, Lieutenant Richard MacClave left his wife Mary, his two daughters Katherine 8 and Ann 12, and his son Thomas 11, to go to work at Engine Co. 46. There were reasons to be happy in the MacClave home. They had just moved into a new apartment on Bainbridge Avenue in the Bronx. Lieutenant MacClave had just celebrated his 20th Anniversary in the FDNY.

And, Thanksgiving was two days away. This day however, would change the lives of the MacClave family forever.

On the third floor of 4035 Park Avenue in apartment 3A, young Raymond Connover Jr., age 11, was home alone. His father was at work and his mother left the apartment to go to the store. Raymond was hungry and decided to make himself breakfast. After he was done, he went into the apartment living room to watch television. He was startled by the sound of breaking glass in the kitchen. He ran to see what caused the sound. He saw that the kitchen was on fire. Raymond grabbed the family dog and fled the apartment.
In the tenement next door, 4031 Park Avenue apartment 3B, Mr. Ernest Sulzer, age 46, was going through his morning routine. He looked out his apartment window into the air and light shaft and he saw billowing smoke coming from the third floor of the tenement next door at 4035 Park Avenue. He quickly ran downstairs and “snapped” the fire alarm box at the corner of E. 174 Street and Park Avenue. He then ran into the fire building to alert the occupants of the danger.

The day tour was about to commence at the firehouse of Engine 46 and Hook & Ladder 27 at 453 E. 176 Street. Commanding Engine 46 was Lieutenant Richard MacClave, and commanding Hook & Ladder 27 was Captain Thomas F. Finnegan. Just prior to the bells sounding 11-11 signaling the start of the day tour at 0900 hours, the Bronx Fire Dispatchers tapped out a box over the telegraph system. The bells were sounded in quick succession: one two, one two three four five six seven eight nine, one, one two three four five six seven...Box 2917, Park Avenue and E. 174 Street. Engine 46 and Hook & Ladder 27 were assigned first due to this box. They quickly turned out. The alarm box was only a couple blocks away.
Engine 46 arrived at the fire building near the corner of Park Avenue and E. 174 Street. Lieutenant Richard MacClave donned his turnout gear and his Mine Safety Appliance (MSA) canister filter mask. He could see the smoke coming from the front windows of the third floor on the left side. He told the Firefighters of Engine 46 to stretch a 2 ½ inch hose line to the fire floor. He then charged up the stairway. Upon arrival at the 3rd floor, he donned his facepiece and began operations in the fire apartment. Fire and thick smoke were now spreading throughout the railroad flat apartment.

Hook & Ladder 27 arrived at the fire. Captain Finnegan and his forcible entry team raced up the tenement stairway to evacuate the third, fourth and fifth floors. From the outside of the building, it appeared that the fire was making its way to the upper floors.

Engine 42 arrived at the fire and stretched a back-up hose line to the fire floor. They then stretched this hose line to the 4th floor. Engine 50 arrived at the fire. They were ordered to stretch a hose line to the 5th floor.
Deputy Chief John J. Broderick of the 7th Division arrived at the fire. He saw fire extending to the upper floors of the 5-story new law tenement. He transmitted a second alarm.

With the fire extending to the upper floors via voids in the kitchen area, a heavy smoke condition was created. Hook & Ladder Companies 19 and 44 joined Hook & Ladder 27 in performing searches and opening up ceilings and walls. In total, 12 people were removed from the fire building.

New York City Fire Department (FDNY) units worked aggressively to extinguish the fire. They were getting ahead of it quickly. It looked like it was going to be a successful operation. Deputy Chief Broderick declared the fire to be “Under Control” at 0925 hours. Shortly thereafter, things went horribly wrong.

As the smoke started to lift in the charred apartment on the third floor, Firefighters found Lieutenant Richard MacClave unconscious on the floor. He still had his MSA filter-type mask facepiece on and he wasn’t breathing. They quickly removed him to the second floor and began artificial respirations. Deputy Chief Broderick radioed the Bronx Fire Dispatchers and requested ambulances respond to the scene.

Three ambulances arrived at the scene quickly. However, none of them had a Doctor on-board. Frustrated, Deputy Chief Broderick requested the New York City Police Department (NYPD) send a radio car to get a Doctor. Before the radio car could return, a Doctor arrived in a fourth ambulance and started working on Lieutenant MacClave on the second floor of the fire building. This Doctor would later pronounce Lieutenant Richard MacClave dead. He was 46 years old.
Historical Note: In 1957 there were no EMTs or Paramedics. The Ambulances were mostly located at hospitals. There were times that Physicians responded with the ambulances. It wasn't until July of 1977 that the New York City Health and Hospitals Corporation established the first fully coordinated Emergency Medical Service. One of the goals was to have 40 Advanced Life Support Units in service within a 3-year period of time.

In addition to Lieutenant MacClave, there were other smoke related injuries: 1) Captain Thomas F. Finnegan H&L 27, 2) Fr. Lawrence Goldblatt of Engine 42, 3) Fr. George Meadows of Engine 50 and 4) Fr. George Conachia of Engine 46. Fr. Conachia was admitted to Jacobi Hospital.

The FDNY confiscated the MSA filter-type mask used by Lieutenant MacClave and three others used at the scene of this fire. These masks were to be tested in FDNY laboratories. Assistant Chief Antonio Petronelli, and Deputy Chief John Broderick supervised this confiscation. The reports in the newspapers stated that Firefighters on the scene said that the filter-type masks had only limited effectiveness. However, Fire Commissioner Edward Cavanagh told the press that the confiscation was routine after a fire such as this.

Lieutenant Richard MacClave’s body was transported to the Engine 46 firehouse, which was the practice at the time. This practice was called “bringing him home”. Lieutenant MacClave’s body was later removed by the Medical Examiner.

At 1130 hours, FDNY Chaplain Reverend Leo Farley arrived at the MacClave home. He informed Mrs. Mary MacClave of her husband’s death. Mrs. Mary MacClave lived to be 100 years old. She raised her three children. She later had 13 Grandchildren and 21 Great Grandchildren.
The mask that was used by Lieutenant Richard MacClave was the Burell Mine Safety Appliance (MSA) mask. The MSA mask was originally purchased and issued by the FDNY in 1938. They were to be used by Rescue Companies for gas leaks and refrigerant leaks. The limitation of the MSA mask was that the atmosphere must have at least 16 percent oxygen and it must not have more than 2 percent of carbon monoxide. In August of 1957, three months before the fire at 4035 Park Avenue, the FDNY approved the MSA filter type mask for general fire-fighting purposes.

Lieutenant Richard MacClave had the MSA filter-type mask facepiece donned. The autopsy of Lieutenant Richard MacClave showed that he had carboxyhemoglobin levels of 65 percent. \textit{(30 percent can cause death.)} Firefighter George Conochia of Engine 46 also had his mask facepiece on. He was also found unconscious, but was still breathing.

The fire at 4035 Park Avenue was the beginning of the end of the MSA filter-type mask for the FDNY. On May 17, 1962, the FDNY had two types of masks. They had 1,800 MSA filter-type masks. The FDNY also had 900 Scott self-contained breathing apparatus. The FDNY would eventually switch over to Scott self-contained breathing apparatus. Mrs. MacClave sued the City of New York stating that the MSA filter-type mask that was provided was inadequate to protect her husband. She won the suit in a unanimous decision on December 4, 1965. The FDNY completely removed the MSA filter-type mask from service within days.
May Lieutenant Richard MacClave rest in peace.

Never forget!
In 1979, the FDNY started switching over to the Scott 4.5 Self-contained breathing apparatus (SCBA). The new SCBA was a dramatic improvement over to older model. It was lighter and more ergonomically efficient. At the time, the protective equipment was the traditional Nomex Coat, ¾ rubber boots, leather gloves and a leather helmet.

During the period between 1979 and 1994, burn injuries to Firefighters progressively increased. This was due to increased use of plastics in buildings, the thermal insulation in buildings, and the new SCBAs allowed Firefighters to advance closer to the seat of the fire. Smoke was no longer an impediment to the operating Firefighter.

In the first 6 months of 1994, FDNY Firefighters suffered 425 serious burns. 23 FDNY Firefighters were admitted to Burn Centers and 4 Firefighters received fatal burns.

In 1994, the FDNY started the change to bunker pants and coats. In the two years after switching over to the Bunker Gear ensemble, lower extremity burns were decreased by 85 percent.

Upper extremity burns were lowered by 65 percent. Head burns were lowered by 40 percent.
**Bunker gear has a finite life. It must be replaced after ten years.**

**Bunker gear provides better protection to the Firefighter when it is cleaned.**

There are three parts to the bunker gear protection; 1. The outer shell, 2. The vapor barrier, 3. The inner liner.

The Thermal Protection Performance (TPP) of bunker gear is its ability to withstand flashover. The higher the number, the greater the gear’s ability to protect the firefighter from radiant heat and conductive heat. The minimum TPP is 35. The FDNY’s TPP for Bunker Gear issued in 2015 and beyond is 42.7. Conductive Compressive Heat Resistance (CCHR) is applied to knee and shoulder areas of the bunker gear. It measures the areas that are compressed during firefighting. The minimum CCHR rating is 25. The Total Heat Loss (THL) of bunker gear is also known as “breathability”. There is a sliding scale between TPP and THL. The higher the TPP, the lower the THL. The lower the TPP, the higher the THL. When a bunker gear garment is designed, it is desirable to get the right balance between TPP and THL.
Especially during the summer months, after being relieved from firefighting duties, it is important to remove the pent-up heat and humidity of the Bunker Gear. Remove the bunker coat and open up the front flap of the bunker pants to begin the cooling process of the firefighter.

When wearing the hood at a fire, the Firefighter must leave the fire area immediately upon feeling any pain or discomfort through the hood unless the area can be cooled by a hose line.

A lack of oxygen contributes to heat stress that is possible when wearing bunker gear at a fire. It is important to wear the SCBA during extinguishment and overhaul operations.

The Bunker Gear ensemble is not a proximity suit. It is designed to protect the Firefighter from normal conditions encountered in fighting fires. The minimum TPP required by the National Fire Protection Association (NFPA) is 35. Theoretically, this means that a Firefighter can survive flashover conditions for 35 seconds.

“When smoke and superheated gases force you to crouch down to less than half the height of the room, there is a danger of flashover.”

“After flashover occurs inside a superheated, smoke-filled room, there is a point of no return beyond which a firefighter cannot escape back to safety. The point of no return, or maximum distance that a firefighter can crawl inside a superheated room and still get back out alive after flashover, is five feet.”

**Deputy Chief Jay Jonas, Division 7**