

# ***Fire Service Traditions and History***

## Traditional Leather Fire Helmets

Firefighter helmets, in the earliest stages, were "stove pipe" type helmets that strongly resembled the top hat made famous by President Abraham Lincoln. They were made of a rigid leather material with the name of the department the firefighter worked for painted on the front, and didn't serve much of a safety purpose, only to signal which department the firefighter belonged to.

The traditional fire helmet was founded by an FDNY volunteer firefighter, Henry T. Gratacap, sometime between 1821 and 1836. Made from very tough leather sewn at each of the combs of the helmet, Gratacap designed the helmet to be fully functional. The reinforced dome was used to protect the firefighter from falling objects. The tall front shield was designed to break windows for rescue and ventilation. The rear brim of was used to protect the back of the neck from intense heat and scorching water. It could also be worn backwards to protect the firefighter from heat if he put his chin to his chest, or while responding to a scene, protecting the wearer from heavy rain or snow in the days of the horse-drawn carriages. The helmet being thrown out a window became the universal sign of a firefighter's cry for help. The helmet originally came with four combs, crossing the helmet both lengthwise and widthwise. Later, after it was discovered that the more combs a helmet came with, the stronger it became, a helmet with eight, twelve, and sixteen combs came out.

Soon after Gratacap started producing these helmets, two brothers by the name of Cairns came up with the idea of identification badges on the front of the helmets. These traditionally came in the shape of a guitar pick, wide near the brim of the helmet and ending at a point with a brass eagle extending from the top of the helmet forward, holding the shield in place. The brass eagle joined the ensemble of the helmet after an unknown sculptor created a figure on a volunteer firefighter's grave at the Trinity Churchyard in Manhattan, New York. This figure showed a person emerging from the flames, one hand holding a trumpet and the other holding a sleeping child, and an eagle on his helmet. Because of this, despite new studies of how the brass eagle hinders firefighters by entanglement and how the eagle gets knocked off or dented, firefighters continue to wear the eagle on their helmets.

The colors of the firefighters' helmets also serve traditional value. Traditionally, the color of the helmet was used to highlight officers. Chiefs would wear a completely white helmet. Captains and lieutenants wore helmets with a white front, and a black or red in the back. Firefighters with black helmets were part of engine companies, and red helmets were part of ladder companies. Later, when rescue companies became, they wore blue helmets. Not long after firefighters started wearing shields on their helmets, pictures on the shields along with the department name began appearing. This was to further articulate rank. The bugle became the universal sign of an officer of an engine company, and pick-head axes became the sign of an officer of a ladder company. Firefighters wore the fire department scramble,

which consisted of a picture of a helmet, ladder, pike pole, and an axe in a circle hanging from a pole with a fork.

Today, many firefighters wear yellow helmets to aid in visibility. Not much has changed to the helmet appearance itself. The only changes consist of the fact that visors or eye shields have been added as well as earflaps and cloth mechanisms keep the inside of the helmet from resting on top of the firefighter's head. Most of the helmets aren't as tall as they were, but the design is the same. This has been the way things have been for almost the past 300 years, and like many other traditions in the fire service, the shape of the helmets are considered immortal.

### **History of the Fire Hydrant**

Have you ever wondered why a fire hydrant is often referred to as a fire plug? This brief overview of the historical development of the fire hydrant contains that answer as well as a few other interesting and worthwhile facts.

Fire has always been regarded as one of the greatest destructive agents known. Methods to combat fire have been practiced by mankind through the ages.

In the beginning, hand appliances and manual labor were used to extinguish fire. Water thrown from buckets by hand had severe limitations and the first step to improve this effort was the development of the syringe. This crude fire extinguisher, similar to today's hypodermic needle, was developed and first used over 2,000 years ago. Historical records indicate that an edict was issued in early Rome requiring every citizen to keep a device in his home to extinguish fire.

The concept of fire plugs dates to at least the 1600s. Firefighters would dig through the street down to the wooden water mains and bore a hole to get water to fight fires. The water would fill the hole and be collected via bucket brigades or, later, via hand pumped fire engines. After the fire was extinguished, a wooden plug was driven in to the hole – the use of a wooden plug in this manner is the origin of the term fire plug.

Early municipal water systems transported water under low head and it was not until late in the eighteenth century that street mains were constantly and sufficiently pressurized. The use of pumping equipment had considerable influence on the development of modern fire hydrants.

Pressurized water mains first enjoyed widespread use in the United States and led to the development of the first fixed-post type fire hydrant in Philadelphia in 1801. Many other large metropolitan areas, including Boston, followed Philadelphia in the development of post-type hydrants for use in their growing water distribution systems. The first order for cast-iron hydrants was made to a firm that had formerly cast cannons during the American Revolution. Over the years, many changes have been made to the fire hydrant to improve its performance and its ease of maintenance.

## **History of Fire Turnout Gear**

Turnout gear, or the protective clothing worn by fire fighters, has come a long way since the last century. In that era, fire fighters wore Civil War-style uniforms that featured heavy wool trousers, a cotton or wool shirt (usually red), and a heavy wool tunic. Wool was the obvious choice, because of its ability to shield against heat and cold, and because of its mild water and flame resistance. Rubber slickers were sometimes worn over the wool uniforms. Fire fighters brought their own gloves to the job, usually standard leather workingmen's gloves. Knee-high leather boots worn in the early years eventually gave way to rubber boots, some of which could be extended to the hips like modern waders (called "three-quarter boots").

Turnout gear took a great leap forward after World War II, when various organizations, foremost among them the National Fire Protection Association (NFPA), began issuing standards. The NFPA 1971 Standard on Protective Clothing for Structural Fire Fighting, for instance, called for an outer layer of flame-resistant fabric that would not be destroyed through charring, separating, or melting when exposed to 500°F for a five-minute period; a second layer to prevent moisture from penetrating through to the wearer; and a third layer to provide thermal insulation from radiant, conducted, and convective heat. Similar standards required gloves that could withstand flame, heat, vapor, liquids, and sharp objects, and footwear resistant to puncture, flame, heat, abrasion, and electrical current.

In the 1980s, fire fighters began wearing turnouts made of three advanced materials: an outer shell material that raised the fire resistance level to about 1,200°F before the material began to break down; a layer that allowed the fire fighter to release moisture from inside the gear; and a fire-resistant synthetic material. Ideally, the latter will last about seven seconds in a flashover situation (when all combustible materials, including walls and floors, suddenly ignite) before catching on fire, which is usually enough time for someone to bail out of room. Further, it is self-extinguishing, meaning once out of contact with a fire, it will not continue to burn. These materials have become the standard for virtually all American fire departments.

Modern turnout gear has become so effective in insulating the fire fighter from heat that new equipment is now being introduced that has an internal alarm to alert him or her when the external temperature exceeds a set limit. These next-generation turnouts consist of six silicone-encapsulated heat sensors located at the shoulder, back, and chest of the turnout coat, just under the outer shell.

## **History of Red Fire Engines**

The most widely accepted reason that fire engines are painted red dates back to the 1800s – a time when there was a LOT of competition between the fire brigades of neighboring cities and towns. The firefighters of each brigade took great pride in their pump. Brigades wanted their rig to stand out by being the cleanest, having the most brass, or being a regal color. Because red was the most expensive color, that is what color most crews chose to paint the pump. Other sources cite the tradition of painting the fire engines red going back to the early 1920's. Henry Ford wanted to make cars as inexpensively as

possible and only offered cars in one color: Black. With all of these black vehicles on the road, the fire service began painting their vehicles red in an effort to stand out.

### **The History of Fire Hoose, Hoase, Hause, or Hose**

As early as 400 B.C. hose played a part in fighting fire. In this era, the hose was made out of ox gut. Firemen filled bags with water and then forced them into the ox gut. The water was forced out of these early hoses by either sitting or stomping on the bag and the hose.

In 1673, two Dutchmen, Jan van der Heiden and his son Nicolaas developed fire “hoase.” These 50-foot lengths of leather tubes were sewn together the way shoemakers made boots. This hose was attached to the gooseneck nozzles on early engines, enabling firefighters to get closer to the fire and shoot a stream of water at it more accurately. Van der Heiden is also credited with inventing an early version of suction hose.

Until about 1800, water for fighting fires came from wells, cisterns and natural bodies of water. When water main services came into existence, fireplugs or hydrants were added to give fire companies access to the water.

In 1803, the Philadelphia Hose Company was founded. Arriving at their first fire, they astonished their fellow firefighters.... Collins quotes: “The new hose company quickly attached their leather hose to the hydrant and stretched it right up to the burning building. A nozzle was attached to the hose and water gushed through the line.” A foreman of a fire company came up to Ruben Haines, the hose company foreman, and adamantly demanded Haines divert the water to the engine where it would then be directed onto the fire. Haines refused, he saw no reason to send the water from the hydrant to the engine first.

Sewn leather hoses often leaked badly and broke under pressure. In 1807, two members of the Philadelphia Hose Company, James Sellers and Abraham Pennock revolutionized fire hose when they developed a way to rivet leather strips together. The hoses were made of the thickest and best rear-quarter cowhides. They were nearly leak-proof except at the couplings. The riveted hoses were 40 to 50 feet in length and had metal couplings. They weighed about 85 pounds.

Leather hose required heavy maintenance. It was necessary to wash, dry and preserve it. One fire company washed theirs in a coffin. Some used codfish & whale oil as preservatives. Many other stations used warm beef tallow and Neat’s foot oil (made from cattle bones) and would work it into the leather. However, after applying the tallow and oil, the heat of a fire caused the hose to smell and become sticky. One station stored their hose in a dill-pickle barrel but many others used horizontal racks to store theirs.

Sellers & Pennock’s advancement with hose had far reaching consequences. With strong hose, it was possible to use suction to draw large quantities of water. The idea of using suction was considered in the United States as early as 1698. New York City had a suction engine in 1793. But without reliable hose

using suction to fight fires was very ineffective. The improvement in hose also permitted pumpers to relay water from distant sources. In Boston, in 1825, the mayor reported 100 feet of hose doing the work that formerly required 60 men hauling buckets. Around 1827, the Fire Chief for New York City counted 30 pumpers in a line a mile and a half long from the source of water to the fire.

In 1821, James Boyd patented his invention for rubber-lined, cotton-webbed fire hose. Charles Goodyear discovered the vulcanization process for rubber in 1839. B. F. Goodrich developed rubber hose reinforced with cotton ply. The Cincinnati Fire Department used this improved hose in 1871.

As more manufacturers entered the marketplace, they each produced their own size of hose and coupling. This problem was addressed in 1873 at the first convention for the International Association of Fire Engineers. The Association adopted the standard size of 7102 threads to the inch.

Five years later in 1878, the American Fire Hose Manufacturing Company, located in Chelsea, Massachusetts marketed their new product, the "first seamless cotton fire hose produced for steam fire engines." Other companies improved hose as well. In a short time fire hose could handle 350 psi. Progress continued and woven cotton became the standard for fire hose. As better weaves were developed the hose became stronger. In this modern age fire hose is lightweight, durable and flexible

### **History of the Maltese Cross**

When a courageous band of crusaders known as the Knights of St. John, fought the Saracens for possession of the holy land, they encountered a new weapon unknown to European warriors. It was a simple, but a horrible device of war, it wrought excruciating pain and agonizing death upon the brave fighters for the cross. The Saracen's weapon was, fire.

As the crusaders advanced on the walls of the city, they were struck by glass bombs containing naphtha. When they became saturated with the highly flammable liquid, the Saracens hurled a flaming torch into their midst. Hundreds of the knights were burned alive; others risked their lives to save their brothers-in-arms from dying painful, fiery deaths.

Thus, these men became our first firefighter and the first of a long list of courageous firefighters. Their heroic efforts were recognized by fellow crusaders who awarded each here a badge of honor - a cross similar to the one firefighter's wear today. Since the Knights of St. John lived for close to four centuries on a little island in the Mediterranean Sea named Malta, the cross came to be known as the Maltese Cross.

The Maltese Cross is your symbol of protection. It means that the firefighter who wears this cross is willing to lay down his life for you just as the crusaders sacrificed their lives for their fellow man so many years ago. The Maltese Cross is a firefighter's badge of honor, signifying that he works in courage - a ladder rung away from death.

## History of the SCBA

Fire service folklore recounts the practice of firemen growing long beards to help them breathe heavy smoke. The theory was a fireman would dip his whiskers in a pail of water, then clinch his wet beard between his teeth and breathe through his mouth, using the wet beard as a filter.

One of the earliest recorded attempts was in France, where the "Apparatus Aldini" was tested in 1825. This was a thick mask of asbestos worn over the head. Another mask made of woven iron wire was placed over the first. The device provided a small margin of heat protection, provided the wearer was able to maintain the air space between the two masks and not allow the iron mask to touch the inner mask.

1824, a miner named John Roberts came up with a "smoke respirator," or hood, that would allow a person "to enter a dense smoke condition without any danger." Various types of filter masks were developed and used by firemen in Europe and the United States. In 1861, an inventor named Brad Brooke devised a "smoke and noxious vapor respirator" designed to allow a person to "enter a building however dense the smoke or vapor might be without injury."

James Braidwood, the Superintendent of the London Fire Brigade, invented another type of hose mask at about the same time. To supply air and protect the firefighter from smoke, a tube was connected to an air pump attached to the engine outside the fire building. A stout leather dress and hood were worn to protect the wearer from heat and flames. Thickly glazed eye holes were provided in the hood. To furnish light a powerful reflecting lantern was worn on the chest. A shrill whistle was attached to the hood for emergency communications.

In 1863, a patent was granted to A. Lacour for his invention, the "improved respiring apparatus." This was actually a self-contained breathing apparatus of sorts and consisted of an airtight bag made of two thicknesses of canvas, separated by a lining of India rubber. The device was carried on the fireman's back and held in place by two shoulder straps and a belt around the waist. The bag was filled with pure air inflated with a pair of bellows, and came in different sizes for air durations of 10 to 30 minutes. From the upper part of the bag two India rubber tubes were connected to a mouthpiece that was held in place by biting down with the teeth. Corks were placed in the mouthpiece when the bag was being filled through a faucet at the bottom of the bag. The corks were then removed when the wearer was ready to begin breathing the stored air. It came with a pair of goggles to protect the eyes from smoke, a rubber clamp for the nose and an air whistle that could be pressed by hand to signal.

In the 1870s, fire departments were buying and using "Nelly's Smoke Excluding Mask." This filter-type mask had a small bag of water that was suspended by a neck strap. Connected to the water bag were two sponge filters that were kept wet when the bag was squeezed. Air was drawn through the filters to the mouthpiece in the face mask.

Toward the end of World War II, Scott Aviation was manufacturing breathing equipment that allowed air crews to operate at extreme altitudes. One story goes that a number of Scott engineers watched a smoky fire being fought in a nearby building. They were amazed that the firemen had to operate in such

a severe smoke condition and they decided to see if they could adapt their equipment to suit firefighting. Working with the Boston and New York City fire departments, Scott introduced the Air Pac in late 1945 after a year of field testing.

### **History of the Fire Extinguisher**

The first automatic fire extinguisher of which there is any record was patented in England in 1723 by Ambrose Godfrey, a celebrated chemist. It consisted of a cask of fire-extinguishing liquid containing a pewter chamber of gunpowder. This was connected with a system of fuses which were ignited, exploding the gunpowder and scattering the solution. This device was probably used to a limited extent, as Bradley's Weekly Messenger for November 7, 1729, refers to its efficiency in stopping a fire in London.

The modern fire extinguisher was invented by British Captain George William Manby in 1818; it consisted of a copper vessel of 3 gallons (13.6 litres) of pearl ash (potassium carbonate) solution contained within compressed air.

The soda-acid extinguisher was invented and patented in 1923 by Hungarian fire brigade officer Kornél Szilvay. His extinguisher used the reaction between sodium bicarbonate solution and sulphuric acid to throw a jet of water on to a fire .[1]

A vial was suspended in the cylinder containing concentrated sulphuric acid. Depending on the type of extinguisher, the vial of acid could be broken in one of two ways. One used a plunger to break the acid vial, while the second released a lead bung that held the vial closed. Once the acid was mixed with the bicarbonate solution, carbon dioxide gas was expelled and thereby pressurize the water. The pressurized water was forced from the canister through a nozzle or short length of hose.

Around 1912 Pyrene invented the carbon tetrachloride (CTC) extinguisher, which expelled the liquid from a brass or chrome container by a handpump; it was usually of 1 imperial quart (1,1 L) or 1 imperial pint (0,6 L) capacity but was also available in up to 2 imperial gallon (9 L) size. A further variety consisted of a glass bottle "bomb" filled with the liquid that was intended to be hurled at the base of a fire. The CTC vaporized and extinguished the flames by chemical reaction. The extinguisher was suitable for liquid and electrical fires, and was popular in motor vehicles for the next 60 years. In the 1940s, Germany invented the liquid chlorobromomethane (CBM) for use in aircraft. It was more effective and slightly less toxic than carbon tetrachloride and was used until 1969. Methyl Bromide was discovered as an extinguishing agent in the 1920s and was used extensively in Europe. It is a low-pressure gas that works by inhibiting the chain reaction of the fire and is the most toxic of the vaporizing liquids, used until the 1960s. The vapor and combustion by-products of all vaporizing liquids were highly toxic, and could cause death in confined spaces.

## **The Dalmatian Dog**

One of the most beloved symbols of the fire service is the Dalmatian dog. The origins of the breed are shrouded in mystery. Experts are unsure really, how old the breed is. It is known that the Dalmatian, because of its poor hunting abilities, was relegated to the stable area of fine homes. It was in these stables that the Dalmatian became acquainted with the horses. Dalmatians were adopted by the fire service in the days of the horse-drawn fire wagons because they were agile and not afraid of the horses. The Dalmatian, with its superior agility and endurance could run out in front of the horses and clear the streets for the approaching fire wagon. When the horses were replaced by gasoline driven fire engines, many fire departments kept their Dalmatians. In some areas you can still see the Dalmatian standing proudly on top of the fire engine as it races to another emergency.

## **Bagpipes at Fire Department Funerals**

The tradition of bagpipes being played at a fire department funeral in the United States dates back over one hundred and fifty years. When the Irish and Scottish immigrated to this country, they brought many of their traditions with them. One of these was the bagpipe, often played at Celtic Weddings, funerals and dances. It wasn't until the great potato famine and massive Irish immigration to the East Coast of the United States that the tradition of the pipes really took hold in fire departments. The only jobs they could get were the ones no one else wanted – jobs that were dirty, dangerous or both – firefighters and police officers. It was not an uncommon event to have several firefighters killed at a working fire. Those who have ever been to funerals when bagpipes play knows how haunting and mournful the sound of the pipes can be; before too long, families and friends of non-Irish firefighters began asking for the piper to play for these fallen heroes. The pipes add a special air and dignity to the solemn occasion. Today the tradition is universal. The pipes have come to be a distinguishing feature of a fallen hero's funeral.

## **Tolling of the Bell**

Long before the Internet was invented, or telephones and radios were used across our great nation, fire departments used the telegraph to communicate – using special codes to receive fire alarms from those once familiar red fire alarm boxes, which stood on practically every street corner in America. When a firefighter was killed, or in the language of the military and public safety: “fell”, in the line of duty, the fire alarm office would tap out a special signal. This would be tapped out as five measured dashes – then a pause – then five more measured dashes. This came to be known as the Tolling of the Bell and was broadcast over the telegraph fire alarm circuits to all station houses in the vicinity. Heard outside on the streets – with the fire department's windows open, the resonating echo was similar to that of fire stations of old where fire alarm gongs sounded the locations of thousands of emergencies throughout the history of our growing country. This was done for the purpose of notification as a sign of honor and respect for all firefighters who have made the ultimate sacrifice in service to their communities. Such



symbolism has been a time honored fire service tradition and is repeated at each service of a fallen firefighter.

### **Saint Florian**

Saint Florian, the patron saint of firefighters, was an officer in the Roman Army during the third century. Saint Florian had converted to Christianity but kept his new faith a secret to avoid persecution. When ordered to execute a group of Christians during the persecutions of Diocletian, Saint Florian professed his faith and refused to follow the order. He then had a stone tied around his neck and he was thrown into a river where he drowned. Florian is said to have once stopped an entire town from burning by throwing a single bucket of water onto the fire. Saint Florian is the patron saint of firefighters, chimney sweeps, barrel-makers, soap boilers, harvest, Australia, Poland and others.

**\*All Information was found on the internet - author unknown**