= 1937 Fox vault fire =

The 1937 Fox vault fire was a major fire in a 20th Century Fox film storage facility in Little Ferry , New Jersey on 9 July 1937 . It was caused by the spontaneous combustion of nitrate film stored in inadequately @-@ ventilated vaults . The fire resulted in one death and two injuries , and destroyed all of the film present .

This fire was responsible for the loss of most of the silent films produced by Fox Film Corporation before 1932 . Also destroyed were Educational Pictures negatives and films of several other studios . It brought attention to the potential for decaying nitrate film to spontaneously ignite , and changed the focus of film preservation efforts to include a greater focus on fire safety .

= = Background = =

= = = Nitrate film = = =

The early motion picture industry primarily used nitrocellulose film stock , commonly called nitrate film . This film is flammable , and produces its own oxygen supply as it burns . Nitrate fires burn rapidly , and cannot typically be extinguished , capable of burning even underwater . Additionally , nitrocellulose is subject to thermal decomposition and hydrolysis , breaking down over time in the presence of high temperatures and moisture . This decaying film stock releases nitrogen oxides that themselves contribute to the decay and make the damaged film burn more easily . Under the right conditions , nitrate film can even spontaneously combust . In part because of substantial variability in the manufacturing of early film , there is considerable uncertainty about the circumstances necessary for self @-@ ignition . Sustained temperatures of 106 ° F (41 ° C) or higher , large quantities of nitrate film , increased humidity , poor ventilation , and aged or decaying film have all been considered risk factors . Most such fires in film archives have taken place in heat waves during summer months , in closed facilities with limited ventilation , compounding several of these variables . Especially in confined areas , such fires can result in explosions .

Large and dangerous fires sometimes resulted . On 4 May 1897 , one of the first major fires involving nitrate film began when a Lumière projector caught fire at the Bazar de la Charité in Paris ; the resulting blaze caused 180 deaths . In the United States , a series of fires occurred at industry facilities . The Lubin Manufacturing Company 's vault in Philadelphia exploded on 13 June 1914 , followed on 9 December by a fire that destroyed Thomas Edison 's laboratory complex in West Orange , New Jersey . The New York studio of the Famous Players Film Company burned in September 1915 ; in July 1920 , the shipping facility of its corporate successor , Famous Players @-@ Lasky , was destroyed by a fire in Kansas City , Missouri , despite construction intended to minimize that risk . The United Film Ad Service vault , also in Kansas City , burned on 4 August 1928 , and a fire was reported at Pathé Exchange nine days later . In October 1929 , the Consolidated Film Industries facility was badly damaged by a nitrate fire . Spontaneous combustion was not proven to have occurred in any of these fires ; it is possible that the potential of nitrate film to self @-@ ignite was not even recognized before 1933 .

= = = Little Ferry = = =

When Little Ferry , New Jersey contractor William Fehrs was hired to construct a film storage facility in 1934 , he designed the structure to be fireproof . The building had 12 @-@ inch (30 cm) outer walls and a reinforced concrete roof . Internally , it was divided into forty @-@ two individual vaults , each enclosed behind a steel door and separated with 8 @-@ inch (20 cm) brick interior walls . The local fire department confirmed Fehrs 's fireproofing . Despite the potential for fire , the facility was located in a residential neighborhood , and was equipped with neither a fire sprinkler system nor mechanical ventilation .

Film processing company DeLuxe Laboratories owned the building , and rented it to 20th Century

Fox to store the silent films acquired from Fox Film Corporation during the merger .

= = Fire = =

Northern New Jersey experienced a heat wave in July 1937 , with daytime temperatures of 100 ° F (38 ° C) and warm nights . The sustained heat contributed to nitrate decomposition in the film vaults , and the building 's ventilation was inadequate to prevent a dangerous buildup of gasses . At some time shortly after 2 : 00 a.m. on the 9th , spontaneous ignition occurred in the vault at the building 's northwest corner . Local truck driver Robert Davison observed flames coming from one of the structure 's window vents and , within five minutes , used a municipal fire alarm call box to report the fire .

Davison then attempted to awaken the residents of the surrounding houses , many of whom were already alerted to the situation by the noise and intense heat . As decomposition gasses in additional vaults ignited , bursts of fire shot over 100 feet (30 m) horizontally across the ground from the windows , and a similar distance into the air from the building 's roof vents . Anna Greeves and her two sons , John and Charles , were caught in one such " sheet of flame " while attempting to flee the area . All three were seriously burned ; 13 @-@ year @-@ old Charles eventually died from his injuries on 19 July . Other area families were able to escape unharmed as the fire spread to five neighboring residences and destroyed two vehicles .

Little Ferry firefighters first arrived at 2 : 26 a.m. , followed by additional companies from Hawthorne , Ridgefield Park , River Edge , and South Hackensack . Despite 150 men employing fourteen hose streams , the fire was not extinguished until 5 : 30 a.m.

Property damage was estimated at $ 150 @,@ 000 ? 200 @,@ 000 . All of the film in the facility was destroyed ; more than 40 @,@ 000 reels of negatives and film prints burned to ashes inside their film cans . Fifty @-@ seven truckloads of burned film were hauled from the site to have their silver content extracted . Each can contained about five cents worth of silver ; the salvaged metal returned $ 2 @,@ 000 .

= = Legacy = =

Although 20th Century Fox officials at the time remarked that " only old films " were destroyed , the 1937 Fox vault fire is now understood as a significant loss of American film heritage . Film historian Anthony Slide called the destruction of the Fox Film Corporation vault " the most tragic " American nitrate fire . The highest quality examples of every Fox film produced prior to 1932 were destroyed . Although copies located elsewhere allowed some of these films to survive , mostly as lower @-@ quality prints or mere fragments of film , more than 75 % of Fox 's feature films from before 1930 are completely lost . Total or near lost filmography rates occurred for Fox performers like Theda Bara , Valeska Suratt , William Farnum , George Walsh and notorious celebutante performer Evelyn Nesbit , who made less than a score of films for the Studio . The Little Ferry vaults also held works by other film studios which had contracted with Fox for distribution . Educational Pictures had more than 2 @,@ 000 negatives and prints destroyed , including the negatives of Buster Keaton 's silent films with the company . Also present was the original negative of D. W. Griffith 's Way Down East (which Fox had purchased with the intent of remaking) , the negative for the controversial Christie Productions sponsored film The Birth of a Baby , and films by smaller studios such as Atherton Productions , Peck 's Bad Boy Corporation , Principal Pictures , and Serial Producing . Archival material intended for the Museum of Modern Art 's Film Library was lost as well .

The destruction of the Little Ferry facility spurred an interest in fire safety as an aspect of film preservation . Unlike previous large nitrate film fires , the spontaneous combustion of decomposing film stock was determined to be responsible . Investigators suggested that the older nitrocellulose film stored in the archive was of lower quality than then @-@ current film and thus more prone to instability . The Society of Motion Picture Engineers 's Committee on Preservation of Film , three months after the vault fire , cited " recent and rather extensive film fires " as evidence that existing preservation efforts had failed to adequately address the " fire problem " . More heavily reinforced

film vaults were suggested , to prevent fires in a single vault from destroying entire archival facilities . Film storage cabinets with ventilation and cooling systems were also proposed , as was further research into improving the quality of cellulose acetate film to encourage its use as a safer replacement for nitrate film .