Sarah Alger: Welcome to Proto a podcast that explores the frontiers of medicine. I'm Sarah Alger.

John Schultz: And I'm John Schultz. Today we're talking about a terrible moment in Boston's history. On a busy Saturday night in 1942, as many as 1,000 people were enjoying themselves in the Coconut Grove Nightclub. A fire broke out, which led to one of the largest civilian disasters on U.S. soil. We'll speak to the daughter of one of the survivors.

Meg Schmidt: They started to take a step or two, but we're almost instantly overcome by choking, and almost instantly, they fell on top of the others in front of them lying unconscious on the floor.

Sarah Alger: We'll talk about how Coconut Grove became a milestone in burn care and some new directions that field has taken in recent years.

John Schultz: Coming up on this episode of the Proto Podcast brought to you by Massachusetts General Hospital.

Sarah Alger: My co-host today is Dr. John Schultz medical director of the Sumner Redstone Burn Center at Massachusetts General Hospital. Welcome to the Proto Podcast, John.

John Schultz: Thank you, Sarah.

Sarah Alger: I'd like to start with some of the details of this Coconut Grove disaster for listeners who might not have heard about it. It happened on the Saturday night of Thanksgiving Day weekend in 1942. The club was absolutely full well beyond capacity. The numbers reported were between 800 and 1,000 patrons. There had been a football game earlier between Holy Cross and Boston College. Many of those at the club were basking in the afterglow of the game. A Hollywood star Buck Jones was also there with his entourage. Newspapers from the time say that someone had removed a light bulb in the basement probably to create a more intimate atmosphere. A 16 year old bus boy was sent to replace it. He lit a match to see the socket accidentally set fire to an artificial Palm tree and that set the club ablaze. The exits were quickly blocked with bodies and 492 people died from the fire. There were however survivors, a few hundred people were taking the Boston City hospital and Massachusetts General Hospital for treatment. John, can you tell us anything about how burn victims would have been treated before 1942

John Schultz: Before 1942, the wounds of burn patients were coated with tannic acid or a combination of dyes. The rationale behind that is mixed, but they would paint their wounds with this stuff and wait for whatever was dead to fall off. Then if the patient survived, they would skin graph the wounds, but most people didn't survive. They died of infection while their wounds were festering.

Sarah Alger: What was the rationale behind tannic acid?

John Schultz: It was, I guess it's antimicrobial, but the idea was that it would help the dead stuff, the burn... We call it Eschar, which just means scab, but that it would help that to separate from what was living underneath it.

Sarah Alger: Hmm. All right. So the patients who were taken a Mass General had significantly higher survival rates, what was being done differently there?

John Schultz: Well, it was 1942. It was only a year after Pearl Harbor. The Pearl Harbor incident had resulted in a lot of burn injuries. So both Mass General and Boston city hospital were recipients of federal support to learn about and treat burn injuries. In addition, both hospitals were gearing up to treat war casualties. Mass General learned very much both from those who died and those who survived their injuries from the Coconut Grove. Up until that time, smoke inhalation injury was pretty much a mystery. After the Coconut Grove doctors had a much better sense of how smoke inhalation impacted a burn survivor. The other thing that was very important is Mass General had developed one of the first blood banks in the country, the blood bank was instrumental in supporting the patients who survived the Grove fire, and it demonstrated the usefulness of resuscitation of burn patients with plasma.

Sarah Alger: Also, I understand that penicillin was relatively new for civilian medicine at the time. Was it used on these victims?

John Schultz: Yes, it definitely was. Interestingly enough, they realized in the subsequent years that the doses that they were using on the patients were probably way low, but the good thing is that they had sulfa. The patients at Mass General received intravenous infusions of a sulfa antibiotic every day of their initial hospitalization.

Sarah Alger: So I'm guessing that at this time there weren't a lot of options for reconstructive surgery?

John Schultz: There were far fewer than there are now. There were talented plastic surgeons back then just like there are now but there were not as many techniques available. There was no real micro- surgery done. So consequently, it was hard to move tissue from one part of the body to the other that was more complicated than a skin graft, for instance, which is pretty simple.

Sarah Alger: Well, thank you, John. Coming up, we'll hear from the daughter of one of the survivors who was treated at Mass General and the extraordinary life her father lived after he recovered.

John Schultz: You're listening to the Proto Podcast, a production of Massachusetts General Hospital

Sarah Alger: 75 years ago, the Coconut Grove Nightclub in Boston went up in flames. It remains one of the deadliest single building fires in U.S. history, almost 500 people died. Time Magazine described those patrons at the Coconut Grove as quote, "The usual Saturday night, crowd. Soldiers and sailors, a wedding party, a few boys being seen off to army camps." A young newspaper man from Providence was there too. His name was Martin [Sheridan 00:06:47], and his daughter told us the story of how he came to be there and how he was rescued. She also shared passages from his memoir read here by actor Louis [Louis Arald 00:06:58].

Louis Arald: "I had never seen the Coconut Grove before that night. Actually, my role in the story dates back about two weeks before the fire, when I was asked to arrange a Boston itinerary for Buck Jones, the cowboy actor, who was on a nationwide war bond selling tour. Night was bitter cold, but the Grove like so many nightclubs was stuffy, smoky, noisy, poorly lighted, and overcrowded."

Meg Schmidt: I'm Meg Schmidt. My father was Martin Sheridan, and he was a survivor of the Coconut Grove fire in 1942. My father never really talked about the fire to me. I first heard about it when I was about 11 years old. That's when I knew that he had been in a tragedy. I didn't know the circumstances until I was much older. But that night as they were sitting there dad... It was a rowdy group because of this big upset in the football game that afternoon. At first dad thought he heard "Fight, fight", coming from the other end of the room and just assumed it was because of the game. Then someone at the end of dad's table cried out "Fire!"

Louis Arald: "Instantly, I heard the loud crackling of fire sweeping through the pseudo tropical decorations. I did not see any flames. My wife inquired about her mink coat, which I had just checked. 'To hell with it.' I said, 'Let's take our time and walk out of here. There's no reason to get excited.' And we arose took a step or two, and the lights went out. That was the last time I saw my wife alive.

Meg Schmidt: He and his wife, Connie stood up immediately and they started to take a step or two, but we're almost instantly overcome by choking and inhaling these toxic fumes that were in the room at that time. Almost instantly, they fell on top of the others in front of them lying unconscious on the floor. When he regained consciousness, my father remembered hearing footsteps coming toward him. He moaned as loudly as he could. Someone pulled him to his feet and walked him over bodies and wreckage to an exit. His rescuer turned him over to two policemen who propped him up in a chair, outside the Grove in the freezing weather. Several newspaper men were recognized dad at the time and said, "Why it's Marty Sheridan." The name meant nothing of course to his rescuer, but dad often wondered who rescued him?

Louis Arald: "I remember trying to keep from falling off the chair. It was quite a battle. Once a priest whispered in my ear offering the last rites of the church. No aid was given, nor did anyone throw a blanket or a coat over me. I sat there shaking, fighting to remain upright, unable to see because my eyes had puffed shut from the flames. I could feel the seared flesh hanging from my hands. I felt pain beyond imagining. Finally, still conscious I was helped into a taxi cab. I asked the driver where we were going and he replied 'Massachusetts General Hospital.'"

Meg Schmidt: Buck Jones was taken to Massachusetts General hospital at the same time. Sadly he did not survive. When dad arrived at the hospital, he had to wait because they had so many people there. But as soon as they were able to take care of him, they wrapped him in very tight bandages around his head and down really to his neck and the top part of his arms. He absolutely could not see anything, his eyes were puffed shut and it had these big bandages over them as well. But all he could do was hear, and maybe perhaps from the shock and also from morphine, which I assume he was given, he was sort of hallucinating a bit and somehow thought that the Nazis were trying to take his blood. It turned out that it was not the Nazis, it was the nurses who were trying to find a vein in his swollen ankles in which to hook him up for medicine.

But on a lighter note on new year's Eve, in 1942, the floor doctor signed an order. He wrote that they were able to have hospital Bourbon as necessary. That was what the order said. My dad was in the hospital for just under two months. He was released on January 25th, 1943.

Louis Arald: "I found myself a minor celebrity as a survivor of the Grove. Friends and even relatives asked questions, which kept reminding me of the tragedy. Finally, in desperation, I had a card printed up that read. "It's none of your business, but my hands were burned in the Coconut Grove. Don't ask any more questions." Mentally, I was getting nowhere very fast."

Meg Schmidt: My dad was emotionally affected by the fire. He'd been in the hospital several days when he had his first visitor visit him. That was his father. Unfortunately, he had to tell my father that his wife Connie did not survive the fire. So he was sometimes morose and sad and just kept thinking about this throughout his stay in the hospital. After he got out and he decided that he would get a job with the Boston Globe and cover the war as a war correspondent, and he did just that.

Louis Arald: "I became a war correspondent for the Boston Globe. Nothing could have been better for my mind curiously than covering the war. After the fire I wasn't afraid of anything except parachuting from a plane."

Meg Schmidt: My father eventually met the man who pulled him out of the fire. He met him two years after the fire 9,000 miles from Boston. On attack transport ship, a young sailor came up to him and he inquired "You're Marty, Sheridan, aren't you?"

Louis Arald: "He had been in Boston on a weekend pass when he heard fire engines screaming up Washington street. A sailor inquired where the blaze was, and then he taxied to the Grove for the privilege of aiding in the rescue work."

Meg Schmidt: Dad was stunned beyond belief. He often wondered about his rescuer and never imagined that he'd ever be able to meet him. The Coconut Grove affected my father, not that he was a meek person before but it gave him strength that basically made him feel that he could do anything. He remarried oh, probably two and a half years after the fire and married my mother and that's how I came to be. I always admired him for what he had been through and what he did in his life. I rather thought he led an extraordinary life.

Sarah Alger: Martin Sheridan did live a long and productive life after the fire and after the war. In his career as a war reporter, he flew in a plane to witness the final attacks on Tokyo and was one of the only journalists in world war II to be allowed to travel with a submarine crew. He died on New Year's Eve in 2003 at the age of 89. Our thanks to his daughter, Meg for sharing his story. I am joined again by my cohost, Dr. John Schultz, medical director of the Sumner Redstone Burn center at Massachusetts General Hospital. So can you tell us how burn care has changed since 1942?

John Schultz: Sure. I mean, there have been a lot of changes. One of the things that's changed is this patient wouldn't have been allowed to sit in a chair and get cold.

Sarah Alger: Right.

John Schultz: Although in defense of the emergency response system, back then they were overwhelmed. But one only has to look at the response of the city of Boston to the marathon bombing cause see that our EMS response has gotten very sophisticated. Other than that the care for burns is remarkably different. Examples are that people with injured lungs, smoke inhalation injury that would otherwise die, are now supported by ventilators until their lungs can heal. Burns are removed surgically very early now, and grafting starts very soon, as does rehabilitation. These are all very different than it was in 1942.

Sarah Alger: I gather now, no tannic acid, no painting on of dyes and so on?

John Schultz: No. We don't paint.

Sarah Alger: Right.

John Schultz: So yeah, so the biggest single advance in burn care in the 20th century was the realization in the late 1960s, and the early 1970s, that removing the burn tissue early was incredibly important. If someone has third degree burns, we've got to get that dead tissue off otherwise, it's going to make them sick. So we operate very early on these people now. Very different than what our guests father described in his writing about his wounds being covered with dressings. Besides that single advance, which made a remarkable difference in survival, there have been huge advances in surgical nutrition. Burn patients are very hypermetabolic. Their metabolic rate goes way, way up just the resting metabolic rate. They need calories. In the last 30 years, we've figured out much better how to give them calories than we could back in 1942. Of course there's been a perfusion of antibiotics developed since 1942. For significant burn injuries, infection is still the biggest threat to life, so all of the antimicrobials that we have, have made a big difference.

Sarah Alger: Are there new options, sort of new ways to treat burns that are sort of newer on the horizon, like lasers or anything else that you find exciting?

John Schultz: Well, there are definitely laser treatments, are a very exciting modality in the treatment of scars. So burns leaves, scars. Even when we excise them and skin graph them, there are still scars. We don't have the understanding of the basic biology of scarring to prevent them really. Up until the beginning of use of lasers in scar, most of what we did to prevent scar formation has kind of not a really great foundation in science. The laser technology does not yet have a really good scientific foundation. But I'm surveying nationally for the people using it on scars, it makes a big difference. The way that it makes a difference is the laser makes a microscopic injury in the scar that the scar has to heal. We believe that this laser induced injury is asking the scar to remodel a little bit. They appear to remodel in a favorable direction.

Sarah Alger: Interesting. Has tele-health, which is sort of delivery of care to patients digitally, had any effect on burn care?

John Schultz: Definitely it has. The way that it has is mostly in follow up, for us in our practice it lets us follow patients that would otherwise have difficulty getting back into Boston after discharge. It also lets us keep a close eye on our patients that we send to acute inpatient rehabilitation, so that we can visit with them and see how they're doing once a week and they don't have to make an ambulance trip back to Mass General.

Sarah Alger: Right. Is there anything new in terms of how these burns are coming about or sort of the same raft of house fires and things like that?

John Schultz: It's always been scalds as a leading candidate. Any of you out there that like to cook, you know that you put yourself at risk every time you go in the kitchen and flame mechanisms. House fires are less common than they used to be, and injuries from house fires because of more uniform laws about smoke detectors and carbon monoxide detectors. So were much better warned than what used to be put. I'm putting in one plug for a mechanism that I don't think gets enough press, is e-cigarette batteries.

Sarah Alger: Oh.

John Schultz: E-cigarette batteries tend to ignite at times, and most burn centers in the country see at least several of those a year, someone walking with an e-cigarette battery or an e-cigarette in their pocket-

Sarah Alger: Oh dear.

John Schultz: ... and all of a sudden it burst into a flame.

Sarah Alger: All right. Oh, geez. Well with that, thank you, Dr. Schultz for joining us today. Listeners, thank you for tuning in to the Proto Podcast.

John Schultz: Today's podcast was produced by Emily Sober, Bradley Klein, and Jason Anthony.

Sarah Alger: Thanks also to our technical director, Adam Keller. You can find the Proto Podcast on iTunes and Stitcher. Please subscribe, and you can also follow Proto on Facebook and Twitter. See you next time.