

Shelby

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Livermore's bulb — considered the world's longest burning as it nears 110 years — is one of the stars of this illuminating film by director Cosima Dannoritzer, of Spain. On trial in "Conspiracy" is planned obsolescence — the practice of deliberately designing products with limited life spans to drive consumerism.

"There's all these lovely conspiracy stories — granies always saying that everything used to last longer. I wanted to know (whether) that was just subjective or (if it) was really true," Dannoritzer said.

In fact, it was profit-driven scheming by industry titans, not technological limitations,

that led to the evanescent incandescent bulbs of today, she contends.

In meticulous detail, the film lays out how, initially, manufacturers strove for long-lasting bulbs. Thomas Edison's first commercial bulb in 1881 lasted for 1,500 hours; soon, bulb-makers were proudly advertising 2,500-hour bulbs.

But in 1924, the main bulb manufacturers in America and Europe secretly formed a cartel to limit the average life of lamps to 1,000 hours, according to internal documents, Dannoritzer said. By the 1940s, 1,000-hour bulbs became the standard.

Eventually, the cartel was exposed, and in 1953, General Electric and other industry leaders were banned from limiting the light bulb's life span.

Although many patents

have been awarded since, no super-long-lasting incandescent bulbs have succeeded commercially, the film argues.

Donated to Livermore's fire department in 1901, the Centennial Light was made by the defunct Shelby Electric Company in Shelby, Ohio, in the late 1800s. Documents suggest its inventor, Adolphe Chaillet, hoped to create a more efficient, long-lasting bulb.

"It struck me as almost ridiculous that this 100-year-old technology is still functioning. I thought for sure that all the physics must have been worked out," said Debora Katz, a U.S. Naval Academy physics professor who first learned about the bulb when it was featured on the "Mythbusters" television show.

Intrigued, she sent her

students to dig up Chaillet's patent. Its contents were disappointing: Only the configuration of the filament and the shape of the handblown glass he used in an effort to reduce light refraction and better direct the bulb's light were described. Information that might have shed light on his bulb's life span, such as the composition of its filament and the gas surrounding it, were absent.

Livermore's bulb can't be tested directly for fear of destroying it, Katz said. Still, experiments conducted on identical Chaillet bulbs might hold clues.

To determine its thickness, Katz's team shined a laser on a Shelby filament and measured the pattern produced on a screen behind the bulb. The results showed Chaillet's filament was eight times thicker than that of a

modern bulb.

Another difference is wattage. Modern household bulbs range from 40 to 200 watts — the Centennial bulb now gives off 4 watts, about as strong as a night light. Thought to have been a 30-watt bulb when installed, the Livermore light seems to have decreased in power over time.

"You can think of it as sort of an animal with a low metabolism. It's giving us less energy per time, so it can keep on going longer," Katz said.

Other data add credence to the reports that the Centennial Light filament was carbon-based — the norm before tungsten filaments were introduced in the early 1900s. The results are documented in "The Centennial Light Filament," a 2010 paper by one of Katz's former students.

Author Justin Felgar found the hotter the Shelby got, the more electricity got through it. The opposite is true for modern tungsten filaments, suggesting the Shelby filament is made of something else.

To determine its makeup, Katz said she wants to rip apart a Shelby bulb that isn't functioning and run its filament through the Naval Academy's particle accelerator — hopefully before the Centennial Light's 110th birthday in June.

"Perhaps there's just some fluke with that particular (bulb)," Katz said, adding, "I think we should at least be able to talk about what the differences are between the Shelby bulb and the contemporary bulb. Whether those differences account for longevity, I don't know."

Bulb

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For more than a century, the 4-watt bulb — which hangs from the rafters of Fire Station No. 6 in Livermore and gives off about as much light as a night light — has sparked imaginations with its orange-red glow. As the handblown fixture nears its 110th anniversary in the summer, its quirky cult following appears stronger than ever.

In the past year, the bulb has been featured in two documentaries: "The Light Bulb Conspiracy" (2010), which explores the industrial policy of planned obsolescence, and "Century of Brilliance," a forthcoming film about the bulb's history.

It is the subject of two children's books: "The Little Light Shines Bright" (2007) and "The Firehouse Light" (2010); a scientific paper, "The Centennial Light Filament" (2010); and a website, www.centennialbulb.org.

A local team tends to the bulb, which is monitored 24/7 by a webcam. Unlike what it records, the camera has been replaced several times over the years.

The bulb's website — which averages about 1,000 hits a month — was so popular right after the bulb's 100th birthday that it crashed and took the city's website with it.

In the past three months, more than 90 visitors from as far as Australia and the Fiji Islands visited the firehouse and signed the light's guest book. A community celebration honoring the bulb's 110th year of burning is planned for June 18.

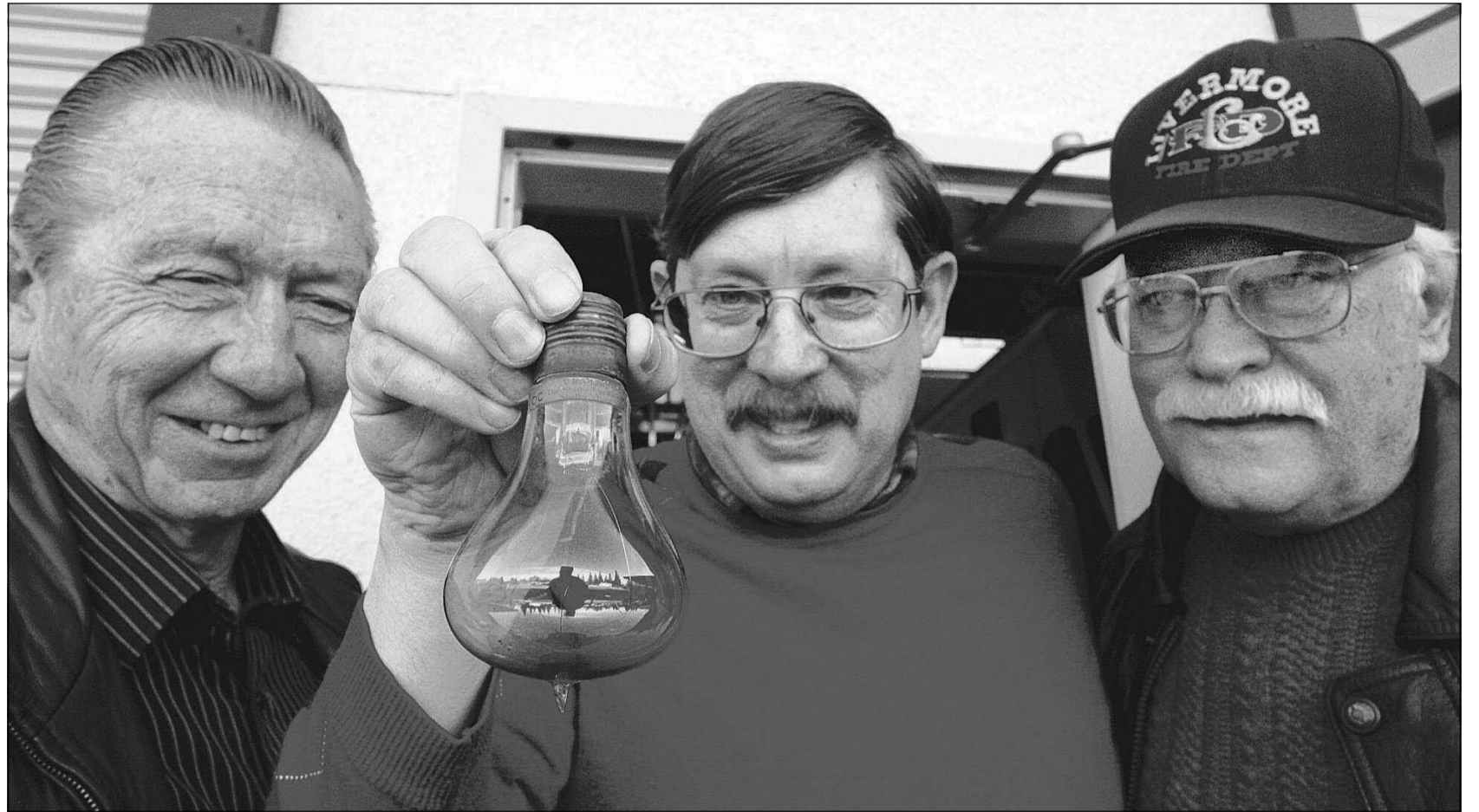
And yet, for all its fanfare, the secret of the light's longevity remains mostly shrouded in darkness.

"I still don't know," U.S. Naval Academy physics professor Debora Katz said, laughing, in response to the question of why the bulb has lasted so long. For the past few years, she and her students have conducted experiments on bulbs of the same vintage as Livermore's in hopes of uncovering clues.

"I don't think people have spent any time on the science or engineering behind it," Katz said. "This isn't the sort of thing that if you sort it out you get to publish in a big journal."

Despite, or perhaps because of, the light's mystery, curiosity abounds.

Steve Bunn, a retired Sandia/California National Laboratories technician, who runs www.centennialbulb.org, got a panicky e-mail from a man living north of the Arctic Circle in Norway when the webcam went on the fritz in 2009.



JIM STEVENS/STAFF PHOTOS

Centennial Light committee member Steve Bunn, center, stands Jan. 10 with members Dick Jones, left, and Lynn Owens while holding a Shelby light bulb that is the same model as Livermore's famous long-burning bulb. Bunn runs a website that streams live video of the Centennial Light.

"We got daylight for about 4-5 hours a day. So your little bulb gives me a little light (on a) Norwegian winter night," Bob Lynx wrote. "I'm amazed by the bulb. ... They just don't make them like that anymore."

Bunn collects antique bulbs from the now defunct Shelby Electric Company in Shelby, Ohio, where it is believed the Livermore bulb was made.

An identical bulb bought on eBay for \$160 has been burning steadily in his house for 10 years, he said. Shelby bulbs elsewhere in the U.S. also have been burning since the turn of the century, though Livermore devotees insist theirs has burned the longest.

Legend has it that Livermore Power and Light Company owner Dennis Bernal donated the bulb to the Fire Department in 1901. Volunteers recalled first seeing it lit in the department's hose cart on L Street. Shortly after, it was moved to the new Station No. 1 on First and McLeod and eventually to its present site on East Avenue. It has only been turned off a few times over the decades.

The bulb's inventor, French-born Adolphe Chaillet, aimed to make a longer-burning bulb, according to historical documents. But how he accomplished that feat appears to have been buried along with him.

"It's not this high-tech, masterfully crafted gadget. It was just another bulb coming down the assembly line in



Bunn, a Castro Valley resident, reviews a visitor log near a memorabilia wall at Livermore Fire Station No. 6, home of the Centennial Light, which has burned for 109 years.

Shelby, Ohio, and it's still doing what it's supposed to do. I think there's something magical about that," said "Century of Brilliance" director Chris

Leps, 39, of Hollywood.

An aspiring filmmaker and longtime stuntman who has worked as a body double for actors Johnny Depp and

Kiefer Sutherland, Leps said he became enamored with the bulb after reading about it in a newspaper. He hopes to unveil his film at the community celebration this summer.

Also to be sold there: "The Little Light Shines Bright," a self-published book by KPIX-TV Channel 5 anchor Juliette Goodrich, and "The Firehouse Light" (Random House, 2007), by Chicago resident Janet Nolan. Proceeds from Goodrich's sales benefit reading and writing programs and child burn victims.

"I don't remember how I first heard about the light bulb. I just remember that 'wow' moment, and walking around for days just blown away," Nolan said in a phone interview. "There's a magic to this bulb that I think touches us on a deep level."

Leps echoed her remarks: "The bulb represents a simpler time, but also ... a more valuable time, when things were meant to last," he said.

The person who may be most blasé about the bulb is the one closest to its source.

Sally Maier, 83, the long-time curator of the Shelby Museum of History in Shelby, Ohio, snorted with laughter when she learned Shelby bulbs sell for more than \$100 on eBay.

"You've got to be kidding me," she said.

A former factory town of fewer than 10,000 people, Shelby once made such varied things as bubble gum and bicycles. Light bulbs are just

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one part of the town's history, she said.

"Oh, I like it. I think it's neat," she said of Livermore's famed attraction. "But what else can you do but go to the firehouse and watch the light bulb burn? Personally, I think it's like watching paint dry."

Apt as that analogy may be, it is lost on such people as retired Livermore-Pleasanton Fire Department Division Chief Lynn Owens, head of the committee overseeing the bulb. Awhile back, some folks from "Ripley's Believe It or Not" asked if they could have the bulb if and when it burns out, he said. He had no qualms about blowing them off.

"It is amazing how that little light bulb has generated so much for so many people," Owens said. "But it is Livermore's, and that's where it needs to stay."

Hill

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autumn leaves. Cheese spatters the floor. It's a crime scene in cheddar. The eyes of once-eager, now-angry fans turn to you.

You, the casual football fan merely attending this Super Bowl party on a whim with a co-worker, have placed your commemorative plastic 2007 Oakland A's Root Beer Float Day mug full of flat Coors Light on top of your host's TV remote control, bringing the game, and possibly your life, to a horrible halt.

"Woops!" and a sheepish smile will not suffice. This is a bad thing. In fact, it's Super Bad.

I have never done this,

yet it is not out of the realm of possibility. I mean, I love football. I even went to Super Bowl XXIX in Miami, which was awesome and a story for another day. Yet I am not an extreme fan who craves the game for the sake of the game, watching ALL football ANY time no matter what teams are playing, picking apart each scrimmage as if disarming a bomb.

But I respect those who do. For them, Super Bowl Sunday is a sacred holiday, and a careless casual fan can ruin it, like a clumsy relative showing up at Christmas and setting the tree on fire.

Therefore, in the name of peace, harmony and the preservation of sports idiots everywhere, I offer these 10 tips from several die-hard fans, co-workers and friends of friends on what

not to wear, do, say or, for Heisman's sake, eat at your Super Bowl XLV party:

1. DON'T MIX UP YOUR SPORTS. Look up "American football" on your smartphone before you go to the party. Do not breathe the words "home run" or "dribble" unless you plan to do the latter as you run all the way home. Don't ask things like, "Who's Lombardi and why does he have a trophy named after him?" or "Why do they call them Packers?" or "What's a Steeler?" You'll come off as a know-nothing, even if many football know-it-alls don't actually know either. Just accept the fact that you'll hear unfamiliar terms, and if you can't say anything with assurance, then stuff your face with mini hot dogs instead.

2. MINING. You can talk about the game during the

commercials, but don't talk about the commercials during the game. Not even my new fave ad, the one they pre-released with the Darth Vader kid trying to use his Jedi mind tricks on the washing machine. Otherwise, you will create a disturbance in the Force.

When it is safe to speak, refrain from blabbing about your dog or the lack of a well-stocked Liquid Paper supply at work. Stay focused. If fans are discussing a "Terrible Towel," it's not an invitation for you to chime in on the 100 percent combed-cotton towels you bought at the winter white sale at Macy's.

3. KEEP THE CORNY JOKES TO YOURSELF. If the Steelers sack Packers quarterback Aaron Rodgers, resist the temptation to blurt out, "Gee, Mr. Rodgers needs to

stay out of that neighborhood! Ha, ha ..."

4. DON'T TEXT.

5. LEARN HOW TO PRO-NOUNCE THE STEELERS' QUARTERBACK'S NAME. It's Roethlisberger (ROTH-less-BURGER). And don't ask about his off-the-field interests. Trust me on that one.

6. DO NOT FOR ANY REASON PICK THE WINNER THE MINUTE A TEAM SCORES AT THE BEGINNING OF THE GAME. That team will inevitably get the ketchup kicked out of them, as will you.

7. CLOTHING. Go ahead and put on your Atlanta Falcons helmet if you need to, but be ready to defend that decision. Don't overdress. Ladies, no 10-inch pumps in a sweatsuit. Guys, no tight muscle shirts. Try not to snicker, chortle or guffaw when your host or his or her

friends wear entire uniforms to watch the game — not just jerseys, but helmets, shoulder pads and maybe even cups. If nothing else, they can keep some emergency Cheetos in there.

8. FOOD. It's great to bring a snack or beverage. However, do not stop at Whole Foods and put together organic watercress, fig and heirloom-tomato sandwiches on flax-seed bread with a dollop of free-range-goat cheese. The Super Bowl was made for Buffalo wings and ridiculously large bowls of guacamole. Cram more calories in there with your shoe if you have to.

9. DO NOT GET SO DRUNK THAT YOU GET ANNOYED.

10. ABOVE ALL, TREAT THE REMOTE LIKE A LIVE GRENADE. Do not look at it. Do not breathe on it. Just watch the game, baby.