Episode Book

EPISODE #5741

The Bulb That Lit the 20th Century

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SYNOPSIS

One thousand hours of life, ten to seventeen lumens per watt, and a hoarding panic that pushed German bulb sales up 150% before the EU ban. This episode traces the full arc of electric lighting: incandescent, halogen, compact fluorescent, and the semiconductor junction that changed everything. Along the way: why the filament sat frozen in place for sixty years, why CFLs failed culturally despite hitting their efficiency targets, and how three researchers finally got gallium nitride to produce usable blue light — the missing piece that made white LEDs possible. We also cover the regulatory timeline across the EU, US, China, and India, the exemptions that keep filament bulbs legal in fridges and ovens, and a persistent piece of misinformation about the US ban being lifted. If you've ever wondered whether we're near the end of lighting innovation, the answer is no — and the reasons why are more interesting than the ladder itself.

TRANSCRIPT



Corn

One thousand hours. That's the rated life of the bulb that lit the entire twentieth century, and the one people queued up to hoard by the thousands before their governments took it off the shelf.



Herman

And hoarding is not a fringe reaction here. Ahead of the European ban, German sales rose by up to a hundred and fifty percent. The Czech president at the time told citizens to stockpile bulbs to last their lifetime.



Corn

One man in the states reportedly got to forty-eight hundred and twenty-six. Enough to carry him to a hundred, on his own arithmetic.



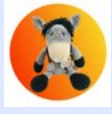
Herman

Which is the correct way to plan, frankly. Buy once, die before the last one burns out.



Corn

Daniel wrote in with a prompt that zooms way out from all the task lighting stuff we've been chewing through lately. His point is that we keep talking about Kelvin value, dimming range, color rendering, brightness, and we never actually stop to look at the technology underneath. So he's got two asks. First, trace the arc. Incandescent, from the earliest electrical lighting through everything that came after, up to what's being developed right now. Second, look forward. What's at the frontier, what's getting deprecated, and are we anywhere near done?



Herman

Done is the wrong instinct, and I think that's the most interesting thing Daniel's poking at.



Corn

Right, because he asked three specific questions inside that second ask. Have we captured most of the efficiency gains already, or is that still an active area? Is color accuracy and range still improving? And are we going to see consumer and indoor lighting shift away from filament bulbs entirely, or does the filament have a future?



Herman

Three questions, three different answers, and none of them is the obvious one. Efficiency is nowhere near tapped out, color is improving faster than it has in decades, and the filament both is and isn't dying.



Corn

Start at the problem the whole industry exists to solve. Take electricity and turn it into visible light, efficiently, without the light looking wrong.



Herman

And those two goals have been in tension for a hundred and forty years. That's the through line for the whole episode.



Corn

So frame it as an efficiency ladder. Rungs, each one better than the last.



Herman

Incandescent sits at the bottom, ten to seventeen lumens per watt depending on the bulb. Halogen, which is still incandescent, just with a halogen gas cycle to redeposit the tungsten back onto the filament, gets you maybe forty percent better and roughly double the life, so around two thousand hours. Compact fluorescent is a huge jump, one fifth to one third the power of incandescent for the same light, and eight to ten thousand hours. Then LED, where current commercial product runs up to a hundred and fifty lumens per watt, with thirty to fifty thousand hours of rated life.



Corn

Which is a factor of ten on efficacy and a factor of thirty-plus on lifespan, inside one human working lifetime.



Herman

That's the ladder. But here's the part that makes it interesting. Incandescent is a black-body radiator. You run current through a filament, it gets hot, it glows, and the spectrum coming off it is smooth and continuous and matches what a hot object should look like. That's why it renders skin and wood and fabric so naturally. It's also why it wastes roughly ninety percent of its energy as heat.



Corn

And LED is the exact opposite. It's a semiconductor junction, it doesn't glow because it's hot, it glows because electrons are falling across a bandgap and releasing photons of one specific energy. That's narrow, it's efficient, and it has nothing to do with what natural light looks like. Every bit of color quality in an LED is engineering bolted on afterward.



Herman

Which is the whole story of the last thirty years. So where do you want to start. Edison, or the physics.



Corn

Physics. Edison gets credit he half deserves, but the interesting thing about his bulbs is how bad they were.



Herman

Carbon filament, 1879, and the early ones had efficacies around one to two lumens per watt. That's a candle in a glass jar with extra steps. Tungsten filaments came in the early 1900s and pushed you toward ten. Then it took sixty years of incremental metallurgy to get to where the bulb basically sat still.



Corn

And it sat still for most of a century. That's the thing that gets lost. People talk about incandescent as if it were a technology that kept improving.



Herman

It didn't. It got cheap, and it got manufactured at a scale and a precision that made it a miracle of mass production, but the physics was done by about 1910. Everything after that was refining the shape of the glass and the cost of the argon fill.



Corn

So the actual next step is the intermediate rungs. Halogen first.



Herman

Halogen in the sixties, clever, and it fixes the failure mode of the original bulb. In a normal incandescent, tungsten evaporates off the filament and deposits on the inside of the glass, which is why old bulbs go grey and dim before they die. Halogen puts a trace of bromine or iodine in the envelope, and it cycles the evaporated tungsten back onto the filament. So the bulb stays clean and the filament lasts longer.



Corn

Forty percent more efficient, twice the life, and hotter running temperature, which actually shifts the light slightly whiter.



Herman

Which is why halogen headlights and halogen shop lights looked so much crisper than the regular bulb in the ceiling. Then compact fluorescent, and this is the one that failed culturally even though it worked technically.



Corn

Failed how.



Herman

It hit the efficiency target. One fifth to one third the power of incandescent for the same light, eight to ten thousand hours, and it got subsidized heavily. It failed on everything else. Mercury, roughly four milligrams per bulb, which meant you couldn't just bin them. Cold-start, so a garage light took a minute to come up. Dimming was basically a no-go, or flickery and narrow if you tried. And the light itself was the real problem, it read flat and slightly green to most people.



Corn

It also had a run-up time and a flicker that some people can perceive at the edge of vision. I know several humans who claim they can feel a fluorescent in a room before they see it.



Herman

That's been studied and it's contested, but the perception is real enough that it shaped the market. And the color rendering on the cheap ones was bad. CRI in the sixties on the budget product.



Corn

So the consumer verdict was: I'm being handed something worse and told it's better.



Herman

Correct, and that verdict is the reason the LED transition went the way it did. The industry learned that efficiency alone doesn't win a fixture in someone's living room. Nobody sells a bulb by telling you what it saves.



Corn

So walk the LED timeline, because it's strange how long the pieces sat around before they clicked together.



Herman

Silicon carbide electroluminescence, H.J. Round, 1907. He noted it and moved on. Oleg Losev builds an actual silicon carbide LED in 1927 and publishes on it, and then dies young and the thread drops. Then 1962, Nick Holonyak at Texas Instruments produces the first practical visible red LED, and it's an indicator lamp. That's what LEDs are for the next thirty years. Little red dots on your stereo.



Corn

Wrong colors for lighting, wrong efficiency, wrong cost.



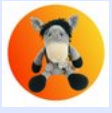
Herman

Right, and the missing piece was blue. You cannot make white light without a short-wavelength emitter, either to blend with red and green or to pump a phosphor. And blue was, for decades, the thing that was not going to work.



Corn

And then Nakamura, Amano and Akasaki, in the nineties, get gallium nitride to behave.



Herman

And it's not just that they got blue. They got it at usable efficiency, at a manufacturable process, and that's what unlocked everything. Nobel Prize in Physics, 2014. And within a couple years, 1996, Nichia is selling the first commercial white LEDs, which is a blue LED with a yellow cerium-doped YAG phosphor painted on top. Blue plus yellow makes something that looks white to the eye.



Corn

Looks white, doesn't render color.



Herman

Badly. Early white LEDs had terrible color rendering, and they were also laughably expensive per lumen. The first ones nobody would have put in a lamp. They went into camera flashes and keychain torches.



Corn

So the road from that to a two-dollar bulb on a supermarket shelf.



Herman

The Department of Energy ran a competition, the L Prize, from 2008 to 2011, specifically to force a sixty-watt replacement into existence. Philips won it in 2011, and the winning lamp was designed to hit a very tight spec on color, on dimming, on longevity, and on price at scale. That competition is a big part of why the spec got solved.



Corn

And once it's solved, the price collapse is brutal. That's where the incandescent is actually displaced, not by regulation but by the fact the alternative got cheaper.



Herman

Both, actually, and you need both. Price did most of the killing, but regulation set the finish line. So let's do the bans, because Daniel asked about deprecation directly.



Corn

The EU agreed to phase out incandescent in 2008 and completed it by 2012, then came back for halogen in September 2018. The US had the Energy Independence and Security Act in 2007, which set efficiency standards that most incandescents couldn't meet. Trump rolled some of that back in 2019, and the Biden administration reinstated the ban, effective August first, 2023. China got done by October 2016. India ran the UJALA



Corn (continued)

program and aimed to swap seven hundred and seventy million bulbs.



Herman

Canada, Australia, Brazil, South Korea, partial or full, the list is long. Which means the answer to Daniel's last question is already mostly history for general-purpose lamps.



Corn

Except.



Herman

Except the exemptions, and they matter more than people think. Appliance lamps, the little ones inside a fridge. Rough-service bulbs, the ones rated for vibration. Three-way bulbs. Decorative and candelabra. Oven lights, plant lights, stage lighting. All of that stays legal, because there is no LED that does the job as cheaply or as well in those specific pockets.



Corn

Which is a nice hedge against the "filament is dead" framing. There's a whole specialty category where the filament survives on merit.



Herman

And one thing worth flagging as a piece of misinformation. There's a persistent belief that the US ban was lifted by an executive order. It wasn't. It's still in effect. There's political pressure to reverse it, some senators have introduced bills, but as of right now the standard stands.



Corn

Good, because that one circulates constantly. Now the backlash, because it's funny and it's instructive.



Herman

It was branded light bulb socialism, which is a decent slogan and also a real complaint. The European consumers' organization argued at the time that people who relied on incandescents should be allowed to buy them until a suitable alternative existed, which is a fair point given how bad early CFLs were. And the hoarding is real. German sales up to a hundred and fifty percent in 2009.



Corn

The four thousand eight hundred and twenty-six bulb guy. I want to know his storage method. That's a fire load.



Herman

He claimed he was set until a hundred. I'd worry about the phosphor on the CFLs in that stash more than the incandescents.



Corn

And Trump's line, that he looks better under an incandescent light. Which, honestly, the bulb is a black-body radiator, so it does flatter skin in a way that a cheap LED does not. He may have been onto something physically even if the politics was the point.



Herman

That's the whole tension in one sentence, though. The thing being banned is nicer to look at. The thing replacing it is better at everything else.



Corn

So the first half of the episode is the arc, and the arc is complete for general lighting. Incandescent, halogen, CFL, LED, each rung roughly doubling efficacy, and LED is the endpoint.



Herman

The endpoint of the ladder and the start of a new one. Because Daniel's first forward question, are we near the ceiling on efficiency, has a very clear answer, and it's no.



Corn

So give me the number. Where are we?



Herman

Current commercial product, up to about a hundred and fifty lumens per watt, and that's the good stuff, not the average. The Department of Energy's long-term research goal for a cost-effective warm-white package is two hundred and fifty to three hundred and twenty-five lumens per watt. Integrated products, fixtures, around two hundred and fifty to two hundred and seventy-five. So we're roughly halfway to the target.



Corn

Halfway. That's not a plateau, that's a runway.



Herman

And above the target is physics. The theoretical maximum for a green LED, which is the hard case, is six hundred and eighty-three lumens per watt. That's the absolute luminous efficacy limit for that wavelength. Nobody's going to hit it, but it shows how much theoretical room is still above the DOE number.



Corn

So where does the light actually go? If we're losing half of it, where.



Herman

Five places, and they're all interesting. First, the green gap. Green LEDs are substantially less efficient than blue and red, and green is exactly the color you need for high-quality color mixing. Second, efficiency droop. LED efficiency falls as you drive more current through the device. It's a real effect, identified in 2013 as coming from Auger



Herman (continued)

recombination, where the energy that should become a photon gets handed off to another electron instead.



Corn

So cranking the drive current to make a brighter chip makes each electron less efficient.



Herman

Which is a fundamental constraint, not a manufacturing defect. Third, phosphor losses. The Stokes shift, where a high-energy blue photon gets absorbed and reemitted as a lower-energy one, loses the difference as heat, and the red phosphors are the worst offenders and also thermally sensitive, so they shift color as the fixture warms up.



Corn

That's the color drift people notice when a bulb has been on for ten minutes.



Herman

Fourth, light extraction. Photons get generated inside a thin film and then get trapped in it through total internal reflection, so a meaningful fraction of the light you made never leaves the chip. Getting photons out is a whole engineering discipline. Fifth, the luminaire. Even with a perfect source, the fixture design, the optics, the power supply, they matter. In a lot of real fixtures, only fifty to sixty percent of the light produced actually makes it out into the room usefully.



Corn

So a hundred and fifty lumens per watt on the datasheet can be eighty in the room.



Herman

Easily. And the DOE's headline claim is that if you fixed all of this, LEDs could cut general lighting energy use nearly in half by 2030.



Corn

Nearly in half, from where we are now, which is already LED-dominant. So the efficiency story has real distance left in it.



Herman

It's not a mature technology being polished. It's an active engineering field with a specific list of unsolved problems.



Corn

Daniel's second question. Color. Is accuracy still improving.



Herman

Faster than it has since the technology existed, and the metric itself is being replaced, which is the part most people don't know.



Corn

CRI. We've leaned on it in past episodes.



Herman

And it deserves the criticism. Color Rendering Index, and specifically Ra, the general one, is built on a set of pastel test colors. It's especially bad at predicting how a source will render saturated reds. Which is why the R9 value exists as a supplemental number. A source can score ninety on Ra and still make a tomato look wrong.



Corn

So why is it still on every box.



Herman

Because it's on every box. Legacy. The newer standard is IES TM-30, which gives you two numbers. Rf, the fidelity index, how closely the source matches a reference. And Rg, the gamut index, how much it saturates or desaturates colors. Together they describe the light far better than one number.



Corn

And the research numbers are getting silly.



Herman

In a good way. There's a cyan phosphor work from last year reporting internal quantum efficiency of ninety-three percent, hitting an Ra of ninety-six point eight. A phosphor paper from 2024 reporting ninety-eight percent internal quantum efficiency and ninety-seven percent thermal stability, making warm white light at Ra ninety-six point six. The cyan one matters because it fills a specific gap in the spectrum that makes otherwise good white LEDs render things slightly flat.



Corn

And the daylight-matching work, that's the one that actually changes the game.



Herman

A 2024 paper, Moreno and colleagues, using thermally activated delayed fluorescence dyes pumped by a violet LED, getting a source that can tune from four thousand two hundred and seventy-seven Kelvin all the way to twenty-two thousand Kelvin, and match daylight's spectrum across that whole range. Their gamut index comes within three percent of daylight, fidelity within seven, and circadian performance within ten.



Corn

Twenty-two thousand Kelvin is not a lighting product, that's the blue of an overcast sky. What's the point.



Herman

The point is the tuning range. If you can match daylight at any time of day, you can build a fixture that follows the sun indoors, which is what human-centric lighting actually means. That's the frontier. It's not about efficiency anymore, it's about pretending there's a window.



Corn

And then there's the white OLED work.



Herman

A 2026 paper on a dual-exciplex white OLED with a CRI of ninety-seven, which is a record, peak external quantum efficiency of twenty-seven percent, and eighty-five point eight lumens per watt, which is competitive with good LED product. And it also does visible light communication at fourteen megabits per second.



Corn

The light bulb is now a network device.



Herman

It was always going to go there. The chip can be modulated faster than the eye can see, so any LED can carry data. Whether anyone actually wants Li-Fi in a ceiling is a different question, but the physics works.



Corn

And perovskite. That's the one that should make everyone sit up.



Herman

Red perovskite LEDs at twenty-eight point seven percent external quantum efficiency, at six hundred and thirty-eight nanometres. Perovskite devices overall hitting thirty-two percent external quantum efficiency, which is near-perfect internal efficiency. The pitch is that they're solution-processable, so you can print them, and they have very narrow



Herman (continued)

emission, so very pure color. The catch is lead content and stability. They degrade. There's work on lead-free variants, cesium tin germanium iodide and similar, but that's not commercial yet.



Corn

So wrap the forward question. Are we still gaining on efficiency, yes. Is color still improving, aggressively yes. Which leaves the third. Will the filament actually disappear.



Herman

For general lighting, effectively yes, already. The regulation took it off the shelf in most major markets, and the price of LEDs did the rest. But the interesting answer is about the aesthetic, not the technology.



Corn

The LED filament bulb.



Herman

Which is exactly that. A column, a rod, and on it are a series of small LED chips, wired in series and coated with phosphor, arranged to look like an old carbon filament. The form survives, the physics is entirely solid-state. It's a costume, and it's a good one.



Corn

And dim-to-warm.



Herman

A base white LED at twenty-seven hundred Kelvin, plus a small red LED that only activates as you dim. So as you turn the light down, the source shifts warmer, which is what an incandescent actually does, because a lower filament temperature is a redder black body. It's emulation of a physical property of the thing it replaced.



Corn

Tunable white, which is the honest product. Blend a warm and a cool emitter, shift the ratio.



Herman

The trade-off there is that you're always mixing, so you never get the full efficacy of either channel. There's a reason the dim-to-warm and the tunable products sit at the higher end of the fixture market. You're paying for the control.



Corn

Now the counterpoints, because Daniel's prompt deserves the caveats rather than the victory lap.



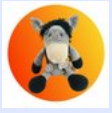
Herman

Several, and they're all real. Circadian first. The American Medical Association in 2016 raised concerns about blue-rich LED light disrupting sleep and circadian rhythm. The short-wavelength content is higher than sodium vapor, it suppresses melatonin more, and if you're sitting under it at eleven at night it's telling your body it's noon.



Corn

Which is why the warm-white market exists at all. It's the health concern driving a product category.



Herman

Then light pollution. Broad-spectrum white light scatters more in the atmosphere, so it makes more sky glow than the old orange sodium lamps, and it attracts insects far more strongly. Sea turtle hatchlings head toward it instead of the ocean. That's a real ecological cost that came bundled with the efficiency gain, and nobody put it on the box.



Corn

The cold-climate one is the most underrated. Incandescent waste heat is not always waste.



Herman

In a heated building in winter, the bulb is contributing to the space heating. So you swap to LED, you save on lighting, and you spend more on the boiler. Most analyses still find net savings, but it's not the clean hundred percent the marketing implies.



Corn

Dimming, which is exactly the thing we've been telling people to look at in workspace fixtures.



Herman

Still true. Many LED bulbs have narrow dimming ranges, flicker at the low end, and won't cooperate with a legacy TRIAC dimmer that was designed for a resistive load. The bulb may be fine and the fixture may be fine and the combination may be a strobe.



Corn

The reliability thing. We say thirty to fifty thousand hours and people hear "the last bulb I'll buy."



Herman

The diode lasts that long. The driver, the little switching power supply in the base, does not. That's what fails. The rated life is a statement about the light-emitting part and says nothing about the electronics around it, and in real installations the driver is the failure point far more often.



Corn

The honest summary is that LED won, and it won by being better on the things that matter and good enough on the things that didn't, and the filament lost the general market and kept the nostalgia and the specialty niche.



Herman

The frontier has moved off efficiency as the only scoreboard. It's color fidelity, it's circadian tuning, it's a whole set of problems the incandescent never had to solve because the sun already solved them.



Corn

There's a detail in the color temperature range I want to sit on for a second. Two thousand seven hundred Kelvin versus the tunable stuff that goes past four thousand. In a home, you almost never want the top of that range.



Herman

Almost never. High color temperature in a living room reads clinical. The four-thousand-plus range is for task spaces and offices and daylight simulation, not for a bedroom. The tunable market exists because people want the low end at night and the mid range in the morning, not because anyone wants a twenty-two thousand Kelvin ceiling.



Corn

Which tells you what the tuning is actually for. It's a sleep hygiene product with a lighting form factor.



Herman

That's the honest framing of human-centric lighting. It's not about aesthetics, it's about signaling time of day to a body that stopped being able to read the sky because it lives indoors.



Corn

One more thing on the dim-to-warm products. Those use a red emitter that only comes on at low dim. What's actually driving the design there?



Herman

The behavior of a real incandescent. If you drop the voltage on a tungsten filament, the filament cools, and a cooler black body emits proportionally more red. So it goes from a warm white to something close to candle color. Peak at full power, orange at the low end. Dim-to-warm reproduces that curve deliberately.



Corn

It's a nostalgia product that happens to also be a decent late-night lighting choice.



Herman

Both, and that's why it sells.



Corn

There's one number I keep coming back to. Six hundred and eighty-three lumens per watt as the green ceiling. It makes everything else look like a rounding error.



Herman

It does. And the reason it's green and not yellow is that the eye's sensitivity peaks in the green, around five hundred and fifty-five nanometres, and the lumen is defined against that peak. So the luminous efficacy limit is highest at exactly the wavelength where a perfect emitter would be most useful and, inconveniently, most useless for seeing color.



Corn

A monochromatic green light source is the most efficient light you could make and the most unpleasant to live under.



Herman

Which is a nice illustration of the whole trade-off, actually. If efficiency were the only goal, you would build a room lit by nothing but green. Every single compromise in this history comes from the fact that humans can see in color and care about it.



Herman

What did you make of the dolphin thing, actually. The two thousand four hundred nanometre business.



Corn

I didn't get that far into it. Did the study have a control?



Hilbert

It's two thousand seven hundred, not two thousand four hundred. And their warm white was ninety-five CRI, not ninety.



Corn

That's a real correction, thanks. But I thought you were going to say something about the fixture efficiency figure.



Hilbert

Fifty to sixty percent is right for a bad fixture. The cheap ones. The number is not the technology, it's the price point.



Herman

That tracks with everything else we've said. The driver and the optics are where the corners get cut, not the chip.



Corn

My brother-in-law sold lighting fixtures for eleven years.



Hilbert

He was not a good salesman, so that has to be qualified. But he knew the product. He used to say the industry sells the diode and the customer replaces the whole box when the driver fails.



Herman

Which is the failure pattern we flagged earlier. The stuff around the emitter is the part that dies.



Hilbert

His view was that the LED transition was not really about light at all. It was about wattage. The bulb got regulated on the watts it drew, not the light it made.



Corn

Which is why so many of the early products felt worse. Everyone was chasing the number the law measured and the customer was looking at the number the law ignored.



Hilbert

They measured the wrong thing on purpose. The efficient number is easy and the visual one is hard. The green gap, the phosphor drift, the flicker at low dim. Those were problems for the buyer, not the regulator.



Herman

That is exactly the color quality argument we have been making with the metrics. The reason CRI is on the box is the regulator wanted a number.



Hilbert

The European regulator wanted a number. The Americans bought the number. The people who actually looked at the light were the last ones asked.



Corn

The whole swap was a regulatory artifact before it was a technical one.



Hilbert

It was. He was not to be trusted on the details, but on that he was right.



Herman

A lot of the resistance to the LED transition, in retrospect, wasn't anti-technology at all. It was people noticing that the metric being optimized wasn't the thing they cared about.



Corn

Which means the honest version of the history is that the efficiency gain was real and the color problem was real, and the regulation forced the first without solving the second until the engineering caught up.



Hilbert

That's about right.



Herman

That applies to the whole market. The gap between an eighty-CRI bulb and a ninety-five-CRI bulb is invisible on the shelf and enormous in the room.



Corn

Which is the thing to keep in mind when you're the one buying the bulb rather than the one writing the standard.



Herman

Daniel's first question, have we captured most of the efficiency gains. Definitively no. We're at roughly half of the DOE's own target and a quarter of the theoretical green ceiling, with a specific list of unsolved physics problems still standing between us and the number.



Corn

Second question, is color accuracy still improving. Yes, and the metric itself is finally catching up to what people can actually see, which is why a ninety-five CRI warm white is a real product rather than a lab curiosity.



Herman

Third question, is the filament going away. For general lighting, it's gone, and it's been gone for most of a decade in the major markets. But the look survives as a solid-state product, the behavior survives as dim-to-warm, and the specialty categories keep the actual incandescent legal for a long time to come.



Corn

The one thing that changed in how I see this whole thing. I came in thinking of LED as the end of the story. It's actually the start of a different story, and the scoreboard moved.



Herman

The efficiency race is still running, but the interesting work has shifted to the spectrum itself. It's no longer about making light cheaper. It's about making it the right color at the right time, and that's a much harder problem.



Corn

One open question for the listener. The dimming-compatibility mess has been with us for a decade and never got fixed properly. If the frontier now is spectral quality rather than raw efficacy, at what point does the industry actually start caring about the last mile to the bulb socket.



Herman

A second one, for free. If we can match daylight indoors, whether anyone wants that is an open question. There's a real possibility that people prefer the warm dip of an incandescent evening to an accurate noon, and the entire human-centric category is arguing the opposite.



Corn

Credits and thanks to producer Hilbert Flumingtop, who kept us honest on the fixture number.



Herman

This has been My Weird Prompts.



Corn

If this deep dive into the evolution of lighting was worth your time, leave us a review. It helps other listeners find the show.



Corn

We'll be back soon.