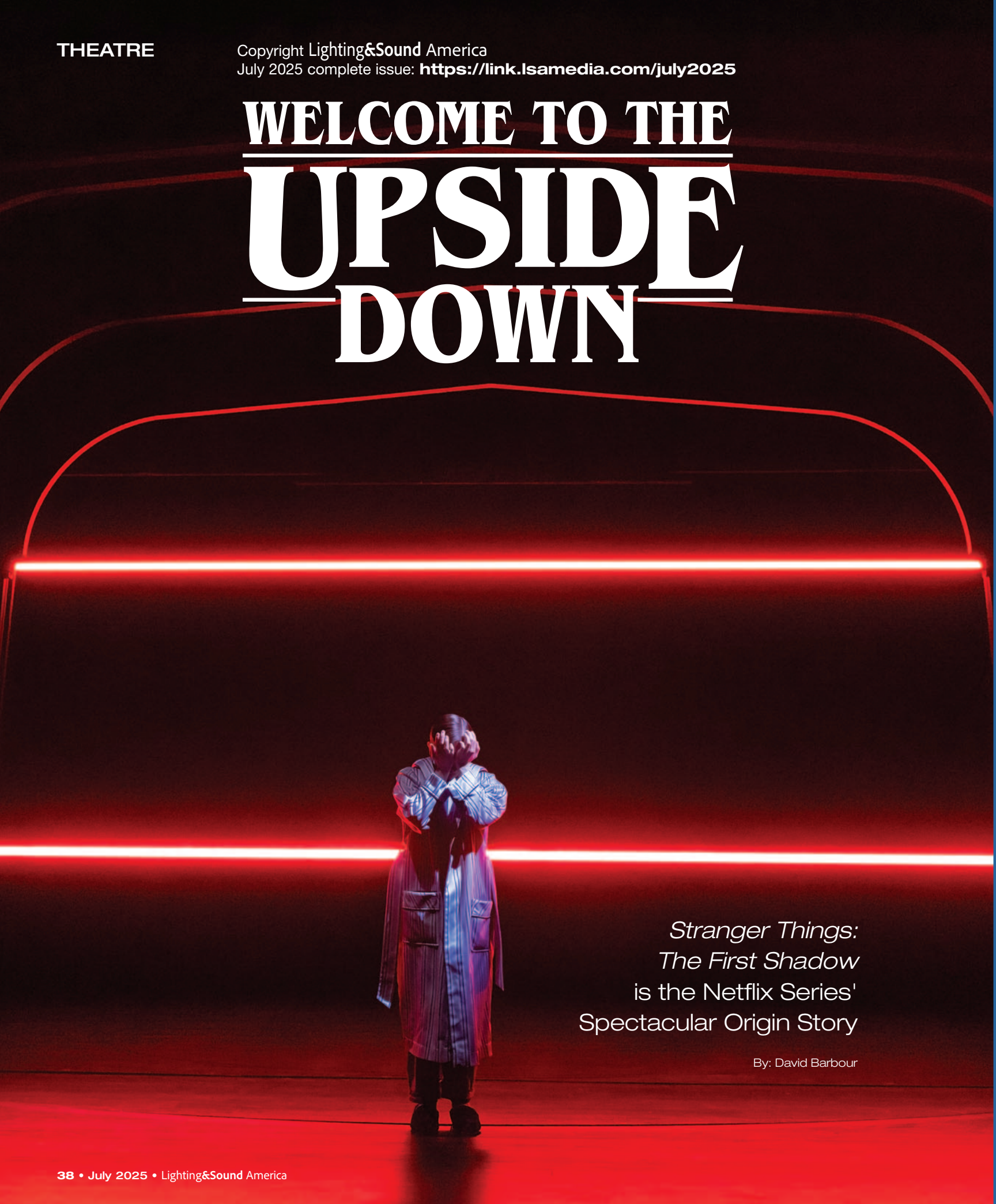
WELCOME TO THE UPSIDE DOWN



Stranger Things: The First Shadow is the Netflix Series' Spectacular Origin Story

By: David Barbour

Left: The look of the void is achieved with a combination of LED tape and video projection. Above: The attic, Buether says, "exists in two versions, depending on where we are in the story: the real location in the Creel house, and Henry's mind space, in which we lose some of the attic structure and the actors float with the help of wires and meticulous lighting and video."

All photos: Matthew Murphy and Evan Zimmerman

The newest and most dazzling example of Broadway's flirtation with IP is *Stranger Things: The First Shadow*, which opened at the Marquis Theatre in April. Based on the current hit Netflix series, it's a daring gamble: Even as the final season is being prepared for an autumn release, the play dispenses with its young protagonists and Reagan-era time frame, flashing back to 1959, when lead adult characters Joyce Byers (née Maldonado) and Jim Hopper are teenagers. The script, by Kate Trefry, a member of the series' writing staff, reaches even further into the past, offering an origin story that answers many burning questions even as it tees up the final season's epic battle between good and evil.

For the uninitiated, *Stranger Things*, the series, unfolds in Hawkins, Indiana, a small town teeming with disturbing phenomena. It begins with the vanishing of 11-year-old Will Byers (Joyce's son) and the simultaneous appearance of a frightened girl with no apparent past or family connections, and the number "11" tattooed on one arm. Both events are connected to the Upside Down, a hellish alternate universe ruled by a monster known as the Mind Flayer, and to experiments at the Hawkins Lab, a government facility run by the indescribably creepy Dr. Brenner.

The first two seasons bring Will back from the Upside Down and reveal 11's astonishing telekinetic powers, which are needed as they and their friends battle headless, all-devouring Demogorgons and fend off the Mind Flayer. In the third season, the Soviet Union gets involved, establishing a secret underground facility in Hawkins dedicated to penetrating the Upside Down; the action climaxes in a battle royale that levels the local mall. By the fourth season, Hopper and Joyce are running around Siberia with conspiracy-minded journalist Murray Bauman as Will, 11, and friends probe a series of serial killings rooted in a domestic homicide from the late 1950s.

For *Stranger Things* fans who haven't seen the play,

The First Shadow weaves together all these plot threads, beginning with a fatal military experiment, during World War II, involving the battleship USS Eldridge. One survivor of this top-secret misadventure is Victor Creel, whose son, Henry—aka Friendly Intern, One, and, ultimately, the monstrous Vecna—is revealed as the linchpin of the saga.

In *The First Shadow*, Joyce, Bob Newby (her future fiancé in season two), and Hopper, son of the local police chief, follow the trail of clues linked to a series of violent incidents; meanwhile, Patty, Bob's adopted, mixed-race sister, is drawn to the intense, socially awkward Henry, who is gifted with telekinetic powers and haunted by menacing visions. As Henry's bizarre behavior becomes harder to ignore, he draws the attention of Dr. Brenner, who holds the key to the mystery, which involves Victor's exposure to magnetic waves during the USS Eldridge incident.

A screening of the documentary *Behind the Curtain: Stranger Things: The First Shadow* (available on Netflix) follows the play's evolution from its first workshop to its November 2023 opening in the West End, where it continues to run. But even after its successful opening, the production was treated as a work in progress, with the script being tweaked and certain staging ideas rethought for Broadway. Moving something on this scale across the Atlantic was no simple matter; the design team, including Miriam Buether (scenery), Jon Clark (lighting), Benjamin Pearcy and Leo Warner for 59 Productions (video), and Paul Arditti (sound), must have often felt voyagers in the Upside Down. As everyone makes clear, close cooperation and good humor were the keys to success.

Scenery

Scenic designer Miriam Buether, whose Broadway credits include *To Kill a Mockingbird*, *Patriots* (a West End transfer), *Three Tall Women*, and *A Doll's House, Part 2*, has a knack for high-concept environments that accommodate scripts with multiple locations. She is comfortable working at many scales. For the drama *The Jungle*, she turned St. Ann's Warehouse in Brooklyn into a French camp for migrants. As *The First Shadow* was loading into the Marquis Theatre, she was overseeing her designs for four Caryl Churchill one-acts at Off-Broadway's Public Theater. "It was a nice contrast," she says, understating the case.

Buether is a longtime fan of *Stranger Things*; after giving herself a refresher course on the first four seasons, she and Stephen Daldry (co-director of the production with Justin Martin) went through Trefry's initial script. The main challenge was obvious, she notes: "There are so many different locations; a lot of them are real, like the school and the hospital, but many are unreal mind spaces like the black and red void," where Henry goes when the Upside Down begins to claim him. Also, she notes, the script calls

Much of the action unfolds in a high school gym, into which a trio of concentric turntables delivers locations that include the Hawkins High AV club, a hospital room, a soda shop, and backstage at a Las Vegas showroom. "It was something we could always come back to," Buether says.

Scenery and video combine to striking effect in many scenes, including the liquor store above, where one of the first of the story's killings takes place.

for moments of pure spectacle, such as the appearance of the Mind Flayer. "We had to create a space in which all that could happen. In London, we didn't know if it would work because so many things had not been done onstage before. Kate wrote these incredible sci-fi scenes, like a massive battleship appearing and disappearing, someone going through the roof, or a theatre catwalk breaking. We could only pull that off if we worked closely together: the set design team, video, sound, and light."

Buether took a two-pronged approach, creating a larger environment that could house many intimately rendered locations while leaving room for massive effects. Much of the action unfolds in a high school gym into which a trio of concentric turntables delivers locations that include the Hawkins High AV club, a hospital room, a soda shop, and backstage at a Las Vegas showroom. Most of these are minimally sketched in. Others are scaled larger, such as the stage for a school production of the Appalachian drama *Dark of the Moon*, directed by Joyce. (The stage is framed in a red proscenium—red being the dominant *Stranger Things* color—in a kind of grillwork pattern.)

"The high school was something we could always come back to," Buether says, adding that, in designing it, she drew on visual research for the series' fifth season. She also describes the turntables as "a set and actor-delivery system," saving the cast members from having to make laborious entrances and exits that would slow the action: "It was important to keep the whole thing moving. We had two turntables, then realized that three would give us even more possibilities of overlapping scenes. There's a center disk, which can raise, and two rings around it, and each of them can turn at a different speed in either direction." With so many scenes, she adds, the stage crew is kept on its toes. For this reason, "We had the revolves in rehearsals from day one, because it's all a complicated clockwork. We had a rehearsal version for almost every piece of scenery, items like the church confessional, benches, and lockers."

One thing that couldn't be added to rehearsals was the theatre catwalk, which figures in the climax, the structure collapsing during a three-way confrontation between Henry, Patty, and Dr. Brenner. "I worked closely with Team Illusion [visual effects designers Jamie Harrison and Chris Fisher] on how it could break apart safely," Buether says. She adds that this and other scenic elements "needed dedicated workshop time to develop a good prototype and to see what each creative department needed."

Because a substantial amount of imagery is projected onto the set, Buether consulted closely with Pearcy and

Above: Given the production's cinematic pace and many illusions, Clark's design is often a massive act of misdirection, turning the audience's attention away from the onstage mechanics, especially those of the illusions. "It's as much about designing the darkness as the lighting," he says.

Warner. "We had to find the right shades of paint to start with," she says. "The high school holding space had to be darker for the video to work." Trials were conducted to find the right hue. Buether storyboarded her designs with concept artist Anya Allin, a task that eventually numbered roughly 150 pictures. Alongside this, her assistants, led by

Joana Dias, produced a 1:25 scale model of the theatre, every piece of scenery, and many props, first as white card models during design development with the directors, and later a painted scale model. The effort, shared with her colleagues, was well worth it: “Once I designed it all, 59 copied the set model for their previz program to trial their video ideas on it.” She notes that in some scenes, the use of Hologauze projection gauze “gives us an invisible projection surface, so we were able to layer certain scenes in an interesting way and create much more depth. It’s particularly helpful when going into the black void, an infinite mind space.”

Two of the most astonishing scenic moments occur at the beginning and end of the production. In the prologue, we see the USS Eldridge, two decks of which are visible through cutouts in a show curtain. The Eldridge experiment involves bombarding the ship with magnetic waves; instantly, the two decks black out, followed by total darkness. Seconds later, the lights come up onstage, revealing the marooned ship with bolts of electricity projected on its hull. “I’m not allowed to tell you how exactly this is done,” Buether says. “But I can say it is a real piece of scenery, which gets there extremely quickly and disappears even faster.” She also notes the role that video, lighting, and sound play in the effect, helping to animate the ship.

Even more show-stopping is the eleventh-hour appearance of the Mind Flayer. “In London, it appears out of the proscenium,” Buether says. "In New York, we wanted to take it further, we wanted it to be bigger, more animated, and closer to the audience. So, we came up with a completely new idea. [Special effects design consultant] Carl Robertshaw and [scenic supervisor] Ed Pierce collaborated closely with us. The Mind Flayer is now an astonishing creature, which descends over the audience, expands, roars, fumes, and disappears. It is animated by video, with lighting and sound effects, and smoke streaming through the semi-translucent fabric.”

“In London,” Pierce says, “the red proscenium has hatches that open; the Mind Flayer unfurls, like a Japanese fan, aided by video projections and a little smoke. In New York, it is a full-on puppet, nestled in the proscenium, which opens like an umbrella fabric that expands out. It is 100% different. The only thing that is the same is that it is called the Mind Flayer.”

Buether also cites the “Scary Patty” scene in which Henry, in a locker room, stares into a mirror that spontaneously cracks. Patty appears, but she is a manifestation of the Mind Flayer, turning into a demonic presence. “It was a very, very complicated scene to tech as the timing of the sequence had to be precise and synchronized with the performers to the second,” the designer says, adding that the construction of this element was further improved for Broadway. “By then, we knew how much space we needed for all our technical gear—like smoke machines, LED screens, batteries—that never gets seen and how the lockers had to be designed to do the tricks.”

The most gothic touches feature the Creel house, which is first seen both as a wall with faded wallpaper and a door. Several scenes unfold in the attic overhead, where

Above: The appearance of ths USS Eldridge. Note the video flames backing the set piece and the electric bolts projected onto it. Clark's lighting, aided by plentiful smoke effects, completes the look. The sequence is filled some of Arditti's most arresting sound effects.

Henry faces the nature of his strange powers; among other things, he rises into the rafters. Buether notes that the high school scenic surround contains a superstructure that "holds the breakable gantry and the attic space. Both span the entire width of our holding space and can travel up and down. The attic space exists in two versions, depending on where we are in the story: the real location in the Creel house, and Henry's mind space, in which we lose some of the attic structure and the actors float with the help of wires and meticulous lighting and video."

Hawkins Lab, where Henry becomes an inmate, is represented by a white box and a bank of TV screens. (See photo, page 45.) "The lab appears four times in the play, each time with very different features," Buether says. "As we don't have enough space in the theatre, we have to adapt it backstage during the show before each new appearance. The first time, it appears as a seemingly straightforward white box, trucking from the back dock toward the audience. The second time, it has a little adjoining room with a big glass window, revealing a prisoner, which we achieve by replacing the back wall. Here, Brenner has to fly through the roof; this had to be carefully designed with Team Illusion, so the actor is safe. For its third appearance, the truck secretly receives another backwall, made up of many televisions, which break open to reveal a gate and a membrane through which we see a Demogorgon. This was a big new idea for Broadway and took a long time to develop, again in close collaboration with the different creative teams. For its last appearance, we remove the back wall, so it is essentially an open frame, located in the room created by Team Video."

Scenery and scenic effects were supplied by Show Motion and Silicon Theatre Scenery BV (the latter also provided flying effects), with additional scenery by Daedalus, Empire Technical Fabrication, J&C Joel, Rose Brand, and Souvenir. Props are by Arnold S. Levine, Inc., BB Props, Jerard Studio, Lamp & Pencil, Mangostone, Monkey Boys, Paragon Innovation Group Inc., Prop & Paint, Q1 Lighting & Scenic, Ross Macdonald, Rob McFadyen, and Show Motion.

Describing the division of labor, Pierce says, "The superstructure and deck with turntables were supplied by

Silicon Theatre Scenery. The cladding, fly automation, mechanics, grid ribbing, and other scenery are by Show Motion. The deck units and large prop pieces, such as furniture, are from Daedalus, BB Props, and Souvenir. And a slew of hand props, with effects, were supplied by the other houses." It's a remarkable achievement to have pulled together so many providers during Broadway's busiest season—12 productions opened in April—when most companies are slammed to the wall with projects.

Video

From the production's first moments, which mimic the opening credits of the series, *The First Shadow* depends on an array of video effects: wartime footage, close-ups of classified documents, clips of the Creel family's home movies, Las Vegas backdrops, flames, shattered mirrors, and glimpses of the Upside Down. At certain points, the entire proscenium comes to throbbing life via projections.

"Working with Stephen and Justin," Pearcy says, "we put together a video illusion workshop, saying, 'Here are the tricks we can do.' That started us with different ideas and gave us a basis." Once a full script was available, he and Warner identified various opportunities for video effects. Some were more daunting than others: "I read the script, and it said, 'The ship disappears.' Miriam figured out where it could happen, with us jumping in to provide effects."

Pearcy notes that the experience garnered in the West End was sometimes of limited use in New York: "It's not just about remounting the London production. You have to teach [the actors and stage crew] how to do everything, and that takes time. Each illusion requires every department to work together precisely. The lighting has to be right, the sound has to be right; never do we execute a trick with only one department."

The video component combines LED video panels upstage and elsewhere with imagery delivered to the set via projectors. Each approach has its virtues, Pearcy says. "We're using a 10-bit workflow on the video wall, which gets us a full dynamic range. When the wall isn't on, it's an inherently black surface, which you can never really get with a projector." The projected imagery on the set often has filmic or graphic qualities: the title of each act, World War II scenes, and, in a sly touch at the finale, the standard button inviting viewers to click onto the next episode.

Still, whichever medium is used, the effects can be startlingly realistic. "We do a lot of smoke effects with video," Pearcy notes. "There was a moment in London when we had video running behind the wrecked ship. Stephen said, 'I just want to see what the video looks like without the smoke.' I said, 'The video is *making* the smoke'." He adds that he and his design colleagues aimed for a perfect melding of video, lighting, and scenery, making it impossible to distinguish the contributions of each.

One particularly eerie effect is the bank of 36 television screens in the Hawkins Lab, showing Henry under obser-

"The lab appears four times in the play, each time with very different features," Buether says. The images in the TV screens unit above are achieved using projectors, Pearcy notes.

vation. Despite the authentic look, the images are projected. “We wanted to have TV screens, but the weight of that unit would be too much given all the mechanics in the lab set, which does so many tricks,” Pearcy says. “And because of the mechanism that splits the unit in half, it would have been really difficult to do with real screens.” Another close collaboration involves scenes set in the void. (See photo, page 38.) The space is dominated by two moving lines of light, rather like cathode rays. The downstage line consists of LED tape, supplied by the lighting department; the upstage line is a projection on the video wall. It is impossible to tell that they are created using different media.

The video gear, supplied by Sound Associates and Blue-i Event Technology, includes INIFiLED video panels and a Disguise GX 3 media server, plus Brompton Technology SX40 processors and six Brompton Tessera XD data distribution units for a full-redundancy main and backup LED system. Ed Cooper, director at Blue-I, says, “We went with Brompton due to its rugged outputs, 10-bit capabilities, excellent reporting, and Dark Magic functionality. These four things are the reason why we always use Brompton, and particularly the last two set them apart from everyone else.” (Dark Magic is a Brompton technology that “improves the quality of the image or video showing on LED panels when they are operating at less than maximum brightness.”) Pearcy adds, “We’re using Disguise’s [10-bit] HDR workflow,” which was developed for use in XR stages. “Disguise keeps telling me we’re the first theatre production to use it,” he adds. Completing the package is a set of nine Panasonic projectors. Video system design and support were supplied by Disco Pixel Productions.

Pearcy says many video cues are triggered via the sound console “because the sound is the bedrock the show sits on, based on the timings that were developed in rehearsal.” He adds, “We can rely, in an extraordinary way,

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on Louis McCartney's performance as Henry." (The actor created the role in London and is now on Broadway.) "He is so impossibly precise that we can cue images around him. When he's riding around the stage and we're doing real and projected smoke around him, those sequences work because of the precision of his performance."

With so much content to create, the 59 team had its work cut out for it, researching, sourcing, and creating imagery. "The London opening was in November, and we started work on it in May," Pearcy says. He adds that the New York production is far from being a carbon copy of the West End original. "For Broadway, we did another series of workshops in London last fall. Ed [Pierce] and Miriam built a model for New York, but we built another one to project on; we put an HDR OLED screen behind it so we could test out new content. We do this a lot, building a physical model to try things out."

Lighting

Lighting designer Jon Clark is the only member of the design team who was initially unfamiliar with *Stranger Things*, the series. In 2019, working with Daldry on the Broadway transfer of the Tony Award-winning drama *The Inheritance*, Clark says, the director floated the idea of putting Hawkins, Indiana, onstage. Clark quickly binge-watched the series and was taken with the idea.

"We were talking about it at the end of 2019 and into 2020, as it went through many revisions and workshops. Obviously, COVID stopped us, although we did a workshop in the middle of it when we could get a West End theatre. We did the best part of a week there, trying out ideas and bringing in other specialists to demo things. It was helpful from a lighting design point of view."

Given the production's cinematic pace and many illusions, Clark's design is often a massive act of misdirection, turning the audience's attention away from the onstage mechanics, especially those of the illusions. "It's as much about designing the darkness as the lighting," he says. "We all worked closely together, but I worked especially with Jamie Harrison and Chris Fisher. It's a very technical design, in terms of where there's light and where there isn't, how it's controlled, and the interaction with Jamie and Chris. And we're passing the baton back and forth with Ben, who led 59 in New York, and Leo, who was in London. It's painstaking, although in New York slightly less so because we learned so much doing it the first time."

Clark's lighting takes a two-part approach. "I wanted to locate the characters in a warm theatrical world when they're in the naturalistic locations that are safe spaces away from all the horrors." In contrast, the supernatural scenes are much starker, often defined by cold white light. This approach cued an old-school solution: "The bridge overhead is filled with open-white PAR cans, which is a surprise to many people seeing this very high-tech show."

To light the play's everyday scenes, Clark says, "The bridge overhead is filled with open-white PAR cans, which is a surprise to many people seeing this very high-tech show."

But, he adds, these conventional units have "a real heat and honesty that provides a human sense among all the supernatural flying around." It also helps to evoke the show's time frame, he adds: "I thought if I lit the stage as it might have been in the 1950s, it would support the period without overemphasizing it."

Many scenes, featuring one or two actors and minimal scenery, have a film noir quality. "It's about constantly redefining the darkness," Clark says. "We did a lot of work to make the auditorium darker, trying to get the support of the fire department to control the space as much as we could. I'm always trying to make sense of the volume of space in relation to the architecture onstage and what's happening dramatically." The designer also makes strategic use of blinder cues to divert the audience's attention during some of the big illusions.

The moving light component relies on ETC Halcyons and Martin MAC Encore WRMs and CLDs, which allow Clark to work with different color temperatures. Regarding

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the Halcyons, he says, “I knew we’d need a strong backlight source overhead, and I wanted to use the new Martin MAC Ultras, which are phenomenally bright. Unfortunately, they’re huge. Each one needs roughly 900mm of turning space. I was already having conversations about finding any light positions, let alone the largest moving light on the market. But the Halcyon has an output that’s very close to the Ultra in the form factor of the MAC Encore.” Lighting gear was supplied by PRG.

The lighting rig includes, from Martin, 35 MAC Encore Performance CLDs, 23 MAC Encore Washes, 18 MAC Encore Performances, and nine MAC Ultra Performances; from GLP, 20 Impression X4 Bar 20s and 11 Impression X4 Bar 10s; 19 ETC/High End Halcyon Titanium Ultra-Brights; and four Ayrton Diablos. Conventional units include thirty-six 1,000W PAR 64 NSPs, and twelve 1,000W snub-nose PAR 64 NSPs; from ETC, 36 Lustr3s and six Lustr2s; and, from Chroma-Q, 12 Color Force IIs in various lengths. Followspots include three Robert Juliat Arthur LTs plus the company’s SpotM and the Lightstrike tracking devices. The plentiful special effects component includes, from Ultratec, four Power Fog Industrial P9Ds and three Eclipse LSGs; from Look Solutions, four Unique 2.1s and four Viper NTs; from Master FX, four Force 8s and four Solstice Snows; from Froggy’s Fog, seven Poseidon A2s and two Poseidon A6s, three Antari Z1520 Fog Jets; two MDG Atmosphere APS units; one Club Cannon Cryo Valve; and one Showven Sparkular Mini.

The lighting is controlled by an ETC Apex console. Its large capacity is necessary because “we have a huge number of wirelessly controlled props,” Clark says. “The list is endless, the stars of which are the torches [flashlights] used by the main characters. They’re controlled, wirelessly, from the console because we need to cue them very specifically; several scenes are lit only with the torches.” The wireless control also supplies the flickering lighting looks that will be instantly familiar to any fan of the series.

To get these all-important effects right, Clark says, “I went through quite a few torches to find ones that gave us the right quality of light and the intensity we needed to light the scenes. Then we installed the required electronics and rechargeable systems. We also made them sturdy enough to last even when they get dropped by the cast.” The UK-based effects firm Lamp and Pencil was drafted to develop these props. “We got to a place where they work reliably enough,” Clark says, “but there have been two additional revisions since the London opening, to make them hardier and more reliable.” Robin Barton, of Lamp and Pencil, notes that products from North Carolina-based RC4 Wireless “are used in a large number of props and practicals that allow the magic of the Upside Down to be brought from screen to stage.”

Arguably, one of Clark’s biggest challenges involved finding room for lighting units amid all the scenery and effects. “The first presentation of the model was something of a shock,” he says, chuckling. “There was so much to cram in that we had to fight for space like never before. There’s a huge structure that supports the catwalk and, behind that, the attic piece takes up a huge upstage/downstage footprint. Initially, we were six or seven meters upstage of the setting line before there were any lighting positions.”

Helping to address the lighting position issue was Gary Beestone, the production’s technical director. “He had such an overview of the whole thing,” Clark says. “He was relentless about trying to make it all work, but realistic about what couldn’t be achieved. We were trying to deal with a huge number of practicalities to achieve the big set pieces. That’s when you need someone with a technical overview, who can protect the creative elements but be realistic in achieving them.”

Getting more downstage positions involved an ingenious collaboration with the scenic department, Clark notes. “The third electric is built under the attic set, which flies in. Underneath it is a full-width lighting position built into the ceiling piece with a dozen moving lights and PAR cans. It spends most of the show trimmed at a regular height with the rest of the rig, but for the attic scenes, it flies in at just above head height.” At the same time, he says, “A wall comes in, with two doors that open where the revolve is. When I saw that, I said, ‘When you open those doors, you’re going to see a moving light at head height. You won’t be able to get through the doors because there’s a position underneath.’

“What Gary and the contractor, Silicon Theatre Scenery, came up with was two pods with two moving lights each; when the wall flies in, they track upstage behind the masking, making room for people to move on the revolve. When the scenery flies out, the pods automatically go back into position. It’s an expensive piece of engineering, but it meant we could have a full-width position for the rest of the show. The final part was moving this huge structure upstage at the very last minute to create a number one lighting position downstage of it.” Clark adds, “Ed Pierce was incredible in managing the transfer from London to New York. He had every department’s back every step of the way, and he coordinated brilliantly. He understood what needed to be achieved from a lighting point of view.”

“We worked hard to make sure Jon’s ideas could be realized,” Pierce says. “Because of time, space, and priority, we lost some vital positions we would have preferred to have. Some highly engineered elements, like the falling gantry, were where the second electric would normally be. Jon had no lighting equipment there at all. I sat down with him, and we went back to his original concept, giving him another opportunity to see what worked well, what he’d like to develop further, and where he felt it was lacking. Then we worked to make space for all those ideas. When I

In Harrison and Fisher's most eye-popping effect, a tormented Henry experiences spider legs emerging from his body. Like all of the show's illusions, it remains a closely guarded secret.

started laying out the show for Broadway, I gave ourselves a little more open space in the hang. We knew that new ideas would evolve over the next nine months; we didn't want to lock ourselves in too much. We also worked with the engineers, not to undo all the great work that they had figured out for the London production, but to find every little nook and cranny where Jon could put a new system, both conventional and moving lights." For example, "The London production had a tornado with smoke machines that took up a lot of real estate. Since that idea didn't move to Broadway, we reclaimed a fair amount of space."

Even with these new solutions in place, Clark notes that the Broadway transfer required redoing fundamental aspects of his design. As previously noted, Arditti's sound design drives many lighting and video cues. "On Broadway, when I arrived for the last couple of weeks of rehearsals, I had a conversation with Paul," Clark says. "He said the show had evolved significantly in rehearsals, adding, 'I've had to disconnect all the MIDI triggers for lighting and video from the sound. I had to move so many things around that we would be unpicking it for days. I think we need to start again.' This meant getting up early each day and working through the show, scene by scene. Ultimately, it was good to do, reassigning lighting cues to the right

The Mind Flayer, the production's pièce de résistance, is a giant puppet that emerges from the proscenium, accompanied by lighting, video, and sound effects. It has been completely reworked from the London production.

place and working out how to pick apart the London show file without breaking it while inserting the new cues." But it added many hours of work for the designer.

Sound

Arditti's design delivers a cascade of special effects plus original music by DJ Walde and the hard-to-forget series theme by Michael Stein and Kyle Dixon. Sound establishes itself as a key component during the prologue with a horrifying screech, tied to the wreck of the USS Eldridge, that strikes a powerful note of impending dread. Other effects will be scarily familiar to fans, for example, the ticking clock and reverberating chime that signals new horrors in the Creel household and the use of vocal distortion as Henry begins to morph into Vecna.

Arditti quickly realized that sound would play a central role: "The first script was written rather like two episodes of the series, with hundreds of scenes. Kate Trefry writes in a very sound-oriented way. Sound moves us from one location to another, and then it is used to establish where we are." He's not stretching a point: In the documentary, Trefry notes that she and the series' other writers typically begin each scene with a sound effect, say the rumble of a car engine or bacon sizzling in a pan; she wryly laments that the same technique doesn't work in the theatre.

Nevertheless, sound paces the action of the play. To get an accurate map of the work facing him, he says, "I sat in on every workshop and rehearsal in London and Broadway. I was there from day one of rehearsals on Broadway to the opening." This was necessary, he adds, because "we wanted to update and change it" for New York.

To maintain a sense of continuity with the series, Arditti says, "We met with [Netflix associate producer/post-production supervisor] Joshua Kohl Hegman. I said, 'I'm trying to recreate a few particular sounds, like the Demogorgon, the clock, and the voice of Vecna,' all of which needed to be as close as possible. They were very kind and gave us assets, which I use. You never see the ticking clock onstage, but it is very clear and recognizable, which is great. Others are used in a quite different way, but while I've created so much fresh stuff, they anchor [the action] with sounds that are already recognizable."

In most cases, the series' effects were jumping-off points. "I wasn't able to use very much of the monster sounds from Netflix because our monsters do different things. But just a second or two of that recognizable Demogorgon voice makes the whole scene feel genuine." He adds, chuckling, "If genuine is the right word for an invented monster."

Arditti says his process was like his previous experiences with Daldry, with whom he has worked on such projects as *The Inheritance* and *The Jungle*. "But it was more intense. As I created musical sections and timings for effects, the other creators would lock into them. We became the soundtrack and time code for the whole show." The approach "suited DJ Walde and, I think, the rest of the team, because there was so much stuff to create that everyone needed something to hang their work on. Someone had to go in first and say, 'It could be like this'."

In terms of underscoring, Arditti says, "Netflix gave us access to whatever we wanted from Stein and Dixon, so we used the theme music and one or two other things. But because the play isn't set in the 1980s, DJ wanted to put his 1950s stamp on it, so we have an interesting blend of Stein and Dixon, plus music from DJ and some classic tunes from the 1950s and early 1960s." (The preshow playlist includes "Yakety Yak," by The Coasters, and "Mambo Rock," by Bill Haley & His Comets. Others used in the show include Judy Garland's "Have Yourself a Merry Little Christmas" and Ella Fitzgerald singing "Dream a Little Dream of Me.")

Interestingly—and in contrast to the comments usually made by Broadway sound designers—Arditti is happy with the acoustics of the Marquis Theatre. (*Stranger Things* is the first straight play in the nearly forty-year history of the Marquis, which was built to accommodate big musicals like *Me and My Girl*, *Victor/Victoria*, and *Thoroughly Modern Millie*.) "Uniquely among the Broadway theatres I've worked in, it's a treat," he says. "Every surface is soft, which wouldn't be great for an unamplified play, but for amplified dialogue, it's fantastic because there are no unwanted echoes, no reverberations." Because the auditorium is placed several floors above street level, he notes, audiences are insulated from sirens and street noises. And, he notes, the air-conditioning system is notably quiet. "Sound-wise, it's a gift."

The Marquis comes with certain challenges, however, Arditti adds. "The wide proscenium is more difficult for a sound designer because the proscenium speakers are forced further out to the sides, which means that making sound appear to come from the center of the stage is much more difficult." Speaker placement was achieved with the assistance of Pierce, whom Arditti charges with "magic powers." He adds, "His job was to combine everybody's needs, for example, moving the speakers by 2" to accommodate the track for the Mind Flayer's legs. The lighting had to be moved slightly because of the projectors. He designed a proscenium for the Mind Flayer, and the tolerance is incredibly tight. When she appears, there's a gap of only a few centimeters from the speakers."

The main loudspeaker system relies on Meyer Sound gear, including 42 LINAs, 20 LEOPARDs, 29 Ultra-X20s, two Ultra-X22s, four Ultra-X40s, two X-42s, 16 UP-4slims, four UP-X4Ps, four USW-112Ps, VLFCs, and, for low end, four 2100-LFCs and four 900-LFCs. "It's an upgrade from what we have at the Phoenix, which is also a Meyer system," Arditti says. "But, because we have a bit more room, I wanted to upgrade it, not necessarily to make it louder, but because the LEOPARDs have incredible headroom. We made one or two tiny focus tweaks to what we'd planned, but they were great from the time I switched them on." Processing is provided by Meyer's Galaxy 816.

Also, Arditti says, "We have a punchy surround system, with bigger speakers than I would normally choose." The choice was strategic, for maximum audience impact, he adds: "It's always more frightening if something seems to fall apart or explode very close to you. The proscenium is such an artificial frame; if you can make good choices about what's going through the surround system, what you get is punchy, localized, and helps to tell the story. We even have a couple of speakers in the ceiling, which are used for one or two special effects." The surround gear consists of d&b audiotechnik gear: 42 E8s, 14 E6s, four Y7Ps, and four E12X-SUBs. A limited amount of foldback is provided for scenes that cut between the attic and elsewhere, and for a dance sequence.

The actors are fitted out with Sennheiser MKE 1 mics, which, he says, "are tiny and robust." Placement, Arditti says, is relatively straightforward despite the many hats and masks. And he adds, "We've got people backstage who are good at camouflaging mics. Maintaining accuracy is difficult, so we have photographs to ensure that each mic gets placed on each actor with a degree of precision." The wireless systems consist of Sennheiser SK6121 transmitters and E6000 receivers.

The show is controlled by a DiGiCo SD7T console. "We ran it on a slightly smaller desk in London," he notes. "But the internal logic of the SD7 is familiar to me, and there are a few things I like that are missing on [DiGiCo's] Quantum338." QLab handles the playback of sound effects and music. "We've got the maximum number of outputs on it," he adds, because of all the sound-delivering objects onstage. "All the radios, TVs, and Bob's DJ booth have wireless speakers in them to provide source points. Then I have speaker zones around the stage that can augment the sound coming from a particular place. It's about balancing multiple speakers, so they sound like they're coming from the source." Speakers used for these effects include EM Acoustics gear: nine EMS41s, four EMS51s, and five EMS61s. Audio gear, including a Clear-

Com comms system, was supplied by Masque Sound.

Also, Arditti says, "We have extra outputs for individual surround speakers. Each speaker has a home run, so I can pick certain ones that are nearby. When an object is smashing, I can do ten different effects out of ten localized speakers, rather than a wall of sound coming from a group of them. We also use Ableton Live to host all our plug-ins; these include a large number of reverbs and special effects, the most notable of which is our Vecna effect, when Louis goes into that gravelly Vecna voice." To achieve this, he adds, "We push a fader that brings up a signal chain with plug-ins that do lots of different secret things, including pitch changes and delays. We got these plug-ins from Netflix; they're hosted in a Pro Tools session, which they use on the actor's voice in the series. We weren't able to use it exactly as it was, but we used elements of it to create our effect. Louis is brilliant at making it work onstage. It's about 60% actor and 40% sound effect. He needs to change gears with his voice and be consistent about when he does it; we push the fader at the exact moment, so it feels like it is coming from him."

The transfer

Pierce says his involvement began almost as soon as the production opened in London. "I went there in early January [2024], when I tried to digest it all in a long weekend. After that, I visited every few weeks for about six months, so I could be with everybody."

He notes that his tasks multiplied over time. "We started with a hit list of about a dozen items that everybody agreed needed to be re-examined or redone. And there were new storytelling ideas that they wanted to work on. But, as we dug in, we started combing through the show in ten-second increments. Stephen Daldry is like a film editor in that way; he keeps working on every little moment. By the time we were ready for Broadway rehearsals, we had touched everything."

Pierce also dealt with the many vendors who contributed to building the production. "We met with Show Motion early, even before we started adapting for the Broadway stage, to make sure they could be available. Even when we aren't quite done designing a piece, we need the technical engineering brains to start thinking about it. Especially with the Mind Flayer, we needed Jon Feustel, our mechanical and automation designer at Show Motion, to be on the journey with us. We had a skeleton of the design, plus some models and schematics. We were pretty precise in our estimates, but then we got to questions like: What are the machines that will drive it? What is that joint going to look like between segments, and what is the fabric? We asked Rose Brand to get involved earlier than is typical to do custom printing samples."

Pierce had a hand in everything, from the configuration of the set to the storage of scenery backstage. "I had a unique role, which I loved," he says. "There was so much to think and dream about, and so many different ways to achieve it. It was one of the most welcoming experiences I've had in 30 years working on Broadway. For example, we talked about what to do with the Mind Flayer. I had been working on the show for several months; we were tearing things out and putting things back into the design in really meaningful ways. Then, I flew to London with a little box and pieces of cardboard hinged together and explained how it might work. There was a lot of trust and hope; it was one of the most collaborative practices. And then you get into the theatre and hold your breath. But when Stephen saw us deploy it, he was over the moon."

Additional key personnel includes Sightline Productions (production management); Markus Maurette (US technical effects designer/pyrotechnician class A); Rolt Smith (production stage manager); Matthew Kurtis Lutz (stage manager); Dan Smith (UK technical consultant); Joana Dias (UK associate scenic designer); Kelly Pooler (US assistant scenic designer); Lucia Sánchez Roldán (UK associate lighting designer); Jessica Creager (associate lighting designer); Elliot Smith (moving light programmer); Tom Wexler (59/video content director); Matt Taylor (59/video content associate); Teya Lanzon (59/video content producer); Jason Devine, Emily Howells, Chris Rabet, Jarek Radecki, Nicol Scott, Edd Stockton, Laurent de Vleeshouwer, and Lawrence Watson (59/animators); Brad Peterson (video programmer); Harrison Freni and Henry Wilen (special effects programmers); Rob Bettle and Christopher Reid (UK associate sound designers); Sam Schloegel (UK associate sound designer); Mary Halliday (UK prop supervisor); Paul Wimmer (production carpenter); Zachary Feivou (head carpenter); Tim Perry (deck automation carpenter); Laicey Gibby-Brown (rehearsal automation carpenter); Kris Keene (house carpenter); Kevin Keene (house fly carpenter); Hunter Keene, Alex Noerpel, and Dominic Russo (deck carpenters); Dan Coey and Derek Jones (production electricians); Asher Robinson (production video); Craig Caccamise (house electrician); Melissa Shippers-Harold (deck video); Derek Jones (light board operator); Nikki Wells (lead followspot); Miriam Mejia and Taylor Kozlowski (followspots); Mike Wojchik and Jake Scudder (production sound); Reece Nunez (A1-mixer); Charlie Grieco (A2), Elspeth Appleby (A3); Ray Wetmore and JR Goodman (props supervisors); John Bryant (head props); Ray Chan (house props); Steve Deverna, Joseph Difonzo, and Chris McChesney (deck props); Matt Mezick (rehearsal props); Ashley Cara Newman (UK assistant scenic designer), Kelly Pooler and Steven Kendall (US assistant scenic designers), Will Elphingstone (assistant lighting designer), Rhia Mitsuhashi (59/video content assistant); Sean Collins (assistant production carpenter); Kwame Tucker (assistant production electrician); Max Marquez (assistant production video); Cameron Brentlinger (props research assistant); and Piper Phillips (lighting design membership candidate).

Stranger Things: The First Shadow continues its open-ended Broadway run.