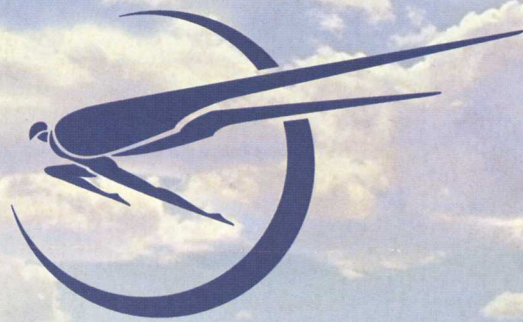


MIX *presents*

SKYWALKER

SOUND



A Tribute to Excellence

Follow the saga that began 25 years ago...

Welcome to Skywalker Sound



George Lucas

Twenty-five years ago, a young USC film school graduate named Ben Burtt walked into George Lucas' office on the Universal lot for an interview. The project was a relatively low-budget science fiction adventure called *The Star Wars*. Lucas and his producer, Gary Kurtz, were looking for a "director of sound," someone who could imagine and implement a creative soundtrack to match and work with their revolutionary plans for the visuals. Burtt went on to receive a Special Achievement Award Oscar, and *Star Wars* went on to become the most successful film of its day, ushering in the age of the blockbuster and changing the way we listen to movies.

Back then, the post-production division of Lucasfilm was named Sprocket Systems. Skywalker Sound, the internationally recognized

division of Lucas Digital Ltd., was created in 1987 along with the development of Skywalker Ranch. But we at *Mix* maintain that the moment Burtt walked in that door, looked around at the Ralph McQuarrie artwork and got the job, Skywalker Sound was born.

After all, a world-class facility doesn't bring home Best Sound Oscars. Editors and mixers do. And as much as state-of-the-art technology fosters ingenuity, the family-like atmosphere at the Ranch breeds creativity.

Tucked away in the hills of West Marin County, California, Skywalker Ranch includes the Main House (where Joseph Campbell was interviewed by Bill Moyers for PBS's *The Power of Myth*), the Technical Building, several guest houses, its own fire department, a health club, an organic garden, onsite child care, a vineyard, a softball diamond, a working stable, and postcard-perfect Lake Ewok. It's a magical place, and the people who work there know it.

In this special supplement to *Mix* magazine, we salute the Lucas companies' quarter-century of excellence in motion picture sound. Longtime *Mix* contributor, game sound designer and musician Larry the O walks us through the formation of Skywalker Sound, from its Sprocket Systems days in San Rafael to the construction of the Tech Building. Film sound editor Michael Axinn then pulls back the curtain and provides a detailed walk-through of the studios, including the legendary Scoring Stage. *Mix* new technologies editor Phil De Lancie follows up with an exploration of the major technological breakthroughs and partnerships that formed over the years, from the acceptance of Dolby as a format to long-distance collaboration via ednet. And everyone will want to read some behind-the-scenes nuggets on the making of the tracks for *Star Wars*, *Empire* and *Jedi*, as told by the editors and mixers.

Films associated with Sprocket Systems or Skywalker Sound have brought home 16 Academy Awards and 12 additional nominations in the sound categories; and Skywalker Sound has won seven TEC Awards. We hope you take the time to read through this special tribute to one of the most creative and humble sound workshops on the planet.

The Editors of Mix

From

Farmhouse

An anecdotal history on the evolution of Skywalker Sound.

By Larry the O

Looking at the bucolic setting of the Skywalker Ranch Tech Building in the rolling hills of Marin County, the half dozen or so mix stages equipped with Neve, SSL and Euphonix consoles, and room after room of Pro Tools systems and other drool-worthy gear, one would hardly imagine this world-renowned, award-winning studio complex to have been born in the humble confines of a suburban farmhouse and grown in a converted beauty salon. But those are, in fact, the places to which Skywalker Sound traces its roots.

In July of 1979, aspiring audio engineer Gary Summers knocked on the door of the former salon in a quaint community less than 20 miles from Skywalker Ranch. The knock was answered by Howie Hammermann, then Lucasfilm's chief engineer ("The only engineer," chuckles Hammermann), starting a friendship and partnership that continues today at Skywalker Sound.

Hammermann had been hired for two months in June 1975 to put together a projector and was still there to answer Summers' query four years later. In the intervening years, Hammermann fixed, futzed and otherwise held together large portions of the nascent Lucasfilm's production effort. He and sound designer Ben Burtt, who was just digging into *Star Wars*, constituted the sound department, which was ensconced in one of the oldest farmhouses in the area.

to Ranch



Farmhouse to Ranch

BUDDING BEAUTY

After the completion of *Star Wars*, Lucasfilm was growing, so the operation was moved down the hill to a former beauty salon. "We built a wall and filled the walls with blow-in insulation. The beauty salon was where we had

ing situation walked Summers.

"They had just finished *More American Graffiti*," Summers recalls. "The day I was interviewed to be hired, Ben and Howie had just finished mixing a 4-track stereo trailer for *The Empire Strikes Back*. Ben brought me in, sat

ried straight through to the present, making him the longest continuous employee on Lucas' sound team.

Hammermann and Summers were typical of the small but energetic team laboring to turn out Lucas' follow-ups to *Star Wars*. "Back then, everybody in the entire company, from George on down to the maintenance people, was working on the current

In 1979, Hammermann
and Burt constituted
the Lucasfilm sound
department.

Lucasfilm project," Summers explains. "It was *Empire*, then it was *Raiders*, then *Jedi* and so on."

His description of the ex-salon's layout sounds like a cluttered New York apartment as he pushes back his chair in the small transfer room deep inside the sizable Tech Building. "The sound department was downstairs: Howie had his engineering room, I had the transfer area and Ben had his little mixing room," he says. "Upstairs were the picture people: George Lucas, Steve Starkey and Duane Dunham." Out of this diminutive facility and skeleton crew came the soundtracks for *The Empire Strikes Back*, *Dark Crystal* (produced by *Star Wars* producer Gary Kurtz) and *Raiders of the Lost Ark*.

A FLOOD OF GROWTH

In late 1980, Tom Holman, perhaps most associated with the development of THX, was hired as Sprocket's chief engineer of post-production. Holman came from high-end stereo equipment maker Apt Corporation and brought a rigorous scientific approach to bear on the needs of the burgeoning Lucasfilm enterprise.

By 1982, the company was clearly outgrowing the beauty salon, so it purchased a building in a nondescript light industrial park a couple of miles



Before Lucasfilm, the L.A. operation was called The Egg Co.

our first real mix room," says Hammermann. Somewhere between the farmhouse and the beauty salon, the sound operation was dubbed Sprocket Systems, although it was still part of Lucasfilm. The small crew settled into the salon as *Star Wars* became a phenomenon, and they started cranking out more movies. Into this accelerat-

me down, played me the trailer and said, 'How would you like to work on this movie?'"

Summers was hired as Burt's assistant, primarily cataloging his sounds from *Star Wars* and building the sound library. It was the start of an illustrious career working for George Lucas, complete with Oscars, that has car-

Farmhouse to Ranch



Some familiar faces from the original Sprocket Group. That's Randy Thom, sitting second from left, and Gary Rydstrom, standing second from left.

from downtown San Rafael, only minutes away. Today, this building, designated "C building," is one of many that house Industrial Light & Magic, the visual effects division of Lucas Digital Ltd. (In a few years, ILM will be moving to Letterman Digital Center, Lucas' major facility now approaching construction in San Francisco's Presidio National Park.)

"It was originally going to be a warehouse for Thrifty Drugs or something like that," explains Hammermann, "so the building itself existed, but we redesigned and rebuilt the interior accommodations. It was a 'tilt-up,' so it was very flexible in the way it was put together; you could do just about anything you wanted. It was a little bit of a weird shape, but we put in a shooting stage for ILM, the C theater, several smaller theater/mix rooms, editing rooms and a bunch of offices."

Holman had been working on the design of the new building for some time, and by February 1982, construction was progressing. Meanwhile, back at the salon, Burt was developing the

voice for E.T. when a decision was made by higher-ups—*really* higher-ups—that the time to move had come.

Somewhere around February 22, the rain started coming down, and it didn't stop or even pause for days. An

Tom Holman brought a rigorous scientific approach to bear on the needs of the burgeoning Lucasfilm enterprise.

offshore wind that blew water into San Francisco Bay didn't help things, and when combined with a high tide of seven or eight feet, the result was a most memorable flood. Summers showed up for work around 8 a.m., with the rain coming down incessantly. "Ben was a big Super 8 fan; he shot a lot of film, and he saw that this was an 'event,'" says Summers. Burt, as well as being one of the great sound designers, is also an accomplished

director and picture editor—he will be film editor, as well as sound designer on the upcoming *Episode II*. "Of course, he didn't know it was going to be a flood, but he saw that this was going to be something worth shooting. So we went up the street to get some film. By the time we got back, the water was starting to get up over the sidewalk, and by 11:30 it was in the building."

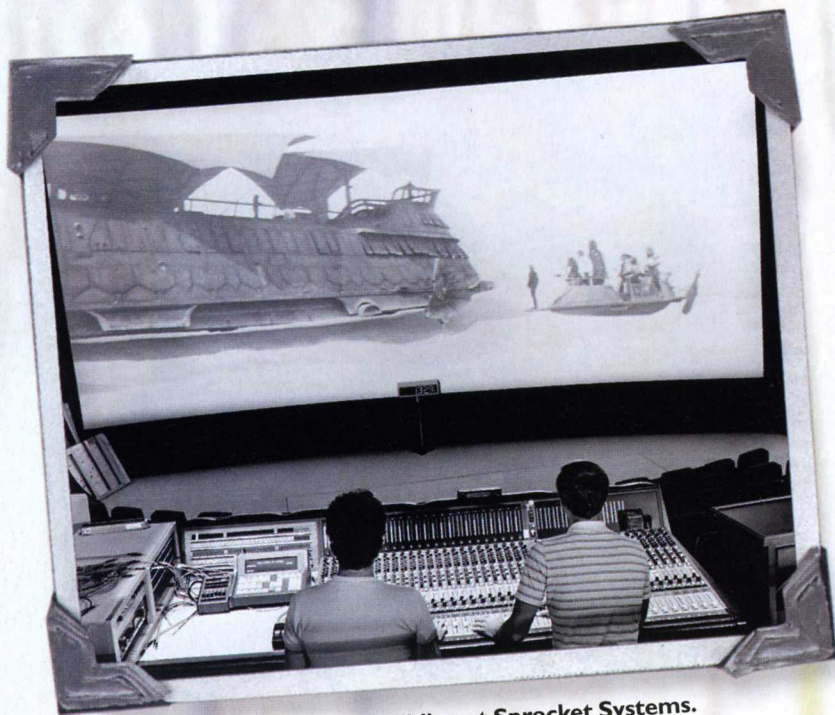
Hammermann, meanwhile, was delayed, having driven his Honda into a puddle that turned out to be a pond. He was finally towed out by a passing truck and left his car on what he thought to be higher ground, but when he went to retrieve it four days later, the water was up to the dashboard.

Hammermann finally made it to work, only to find chaos in the streets, all being captured on film by Burt. "People were kayaking and rubber rafting down the street, cars were literally rolling down the street being pushed by the flood," recalls Hammermann. Burt's footage turned out well enough that he made a film out of it that still plays at the local library.

The poor beauty salon ended up swimming in more than a foot of water. The crew gamely tried to move as much film and equipment (including 24-track tape machines) as possible upstairs. "We had a bunch of reels of wire we had bought in preparation for moving into the building in San Rafael, and we used those to raise things up, so they were underwater," remembers Hammermann. "Later, we used that wire down at Sprocket in San Rafael. There was mud on the outside, and you'd strip the outer jacket off this 24-pair Belden and shake all the water out of it. It was all plastic, so it didn't hurt it." The decision was made that it was clearly time to go. "After the flood hit," adds Hammermann, "it was basically, 'Well, we're moving because it smells bad here.'"

Coming in the middle of production, Summers remembers the move as

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Mixing Jedi in C building at Sprocket Systems.

fast work. "We moved into C building and spent the first month very quickly wiring up Ben's mix room because he had to finish *E.T.*," he says. "So we had to get the Kem [which had a film-to-tape transfer facility], the mixing stage and the machine room/transfer room going. Those were the priorities." Adds Hammermann, "It was long hours. We were sleeping in the building overnight: work all day, go to sleep, get up and work some more."

When *E.T.* finally got out the door, the crew started on *Return of the Jedi*. "It was still mostly me, Ben and Howie, but Tom Holman and some other sound and machine room people had been brought on," says Summers. "Randy Thom had been hired as a sound recordist during *Empire* and other periods of time. The Lucasfilm production staff kept asking, 'Who's going to mix *Jedi*?' Ben and I were working away and doing all the temp mixes and just said, 'Whatever.' George and some others were saying, 'We're going to get the hottest mixers to come up from L.A.,' and we were saying, 'Okay, cool.'"

"We kept doing temps and recording and making sounds, and when it

came time for the mix, we looked around and there were no hottest mixers from L.A.," he continues. "We had hired Roger Savage from Australia to mix the music, but the schedule got pushed back so far he had to go back there, so Randy Thom came on to mix the music, I mixed the dia-

Technology developed at
the computer division traveled
everywhere.

log and Ben mixed the effects. That was sort of the beginning of Sprocket Systems down at C building."

FROM SPROCKET TO SKYWALKER

After *Jedi*, Sprocket's crew kept right on rolling, churning out *Indiana Jones and the Temple of Doom*, *Howard the Duck* and *Willow*. It was during this period that several developments pushed Sprocket Systems in some of the directions that are hallmarks of Skywalker Sound today. All those involved remember the change as an evolution, with few clearly identifiable turning points.

One key event was the founding of

Lucasfilm's computer division around 1980. Initially it was a group of research projects given the task of revolutionizing filmmaking technology, but the computer division resulted in numerous eventual spinoffs, such as Pixar and LucasArts (the company's computer games division). Furthermore, technology developed at the computer division traveled everywhere, from across the country into Avid video editing systems to next door where ILM picked up work on laser scanning of film to videotape.

For the audio side, computer music pioneer Andy Moorer had been brought in from CCRMA, the famed Stanford computer music center, to create the Lucasfilm ASP (Audio Signal Processor). Moorer had built several large digital synthesizers in his academic career and developed a host of groundbreaking software, including phase vocoding. With this experience under his belt, Moorer knew what digital technology could do and presented that vision to a receptive George Lucas, who was then building Skywalker Ranch. These two major projects quickly converged on each other.

The computer division started out based in the Bel Marin Keys, just north of Sprocket Systems. Moorer assembled a group that consisted primarily of some of his more brilliant fellows in the academic computer music community. The computer division brought to Lucasfilm the cutting edge of technology that Lucas has embraced ever since. According to Hammermann, members of the computer division offered classes in UNIX and computers to interested Lucasfilm staffers.

Although both creatively and technically brilliant, the computer division lacked substantial experience in real-world film production environments. The educational experience, it seemed, was needed both ways. "Tom Holman had set up a sound room in Bel Marin Keys. He called Ben and me and said, 'Come on up. We're

Farmhouse to Ranch

going to christen this place and have some champagne. And bring some sound library tapes,” says Summers. “So we go up there with these Dolby A, 15 ips recordings of guns and arrows and all, and we start playing these tapes on this old Ampex ATR100 they have up there. Of course, there’s a little noise at the beginning and the end of the recording, and these guys [from the computer division] are huddled in the corner saying, ‘I think I hear hiss!’ We’re saying, ‘Yeah, but do you hear that rico? It’s awesome!’ And they’re going, ‘My God, there’s *noise!*’ They were obviously into pristine sound, and Ben was trying to get across that it’s not about the purity; it’s the emotional aspect of the sound rather than the technical. That was a learning experience.

“I know Tom Holman grew with that, too,” he continues. “In the beginning, when Tom came in, everything had to be pristine, but eventually he and Randy Thom were coining phrases like, ‘Distortion equals art!’ and ‘If it sounds good, it is good.’”

Eventually, Moorer’s group worked out of the same building as Sprocket. “I think George wanted to get the digital people right next to the filmmaking people so that they could see how we worked,” Summers says.

BACK AT THE RANCH

Meanwhile, Skywalker Ranch was just going up, though Lucas had owned the Ranch for some time. In fact, the construction was a change for the intrepid Sprocket Systems crew: They had been going up to the Ranch since the early days to record sound effects outdoors. “You could shoot guns out here with no problem because there was nobody around,” recalls Ham-

mermann. “One time they let me shoot a Thompson submachine gun. Ho, ho, man, what a handful!”

The favorite spots at the undevel-

the Ranch named for the furry creatures in the *Star Wars* movies.]” “Those guys are licensed, they can do that,” Hammermann chimes in. Soon, the new construction forced them to go over the ridge to record in the valley behind the Tech Building.

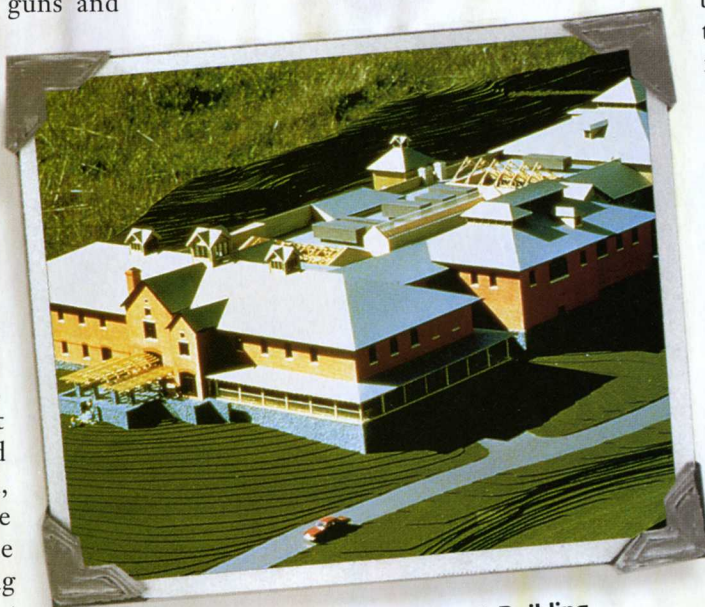
Tom Holman, as chief engineer, worked intensely on the Tech Building design. “Tom was the driving force behind the overall design,” says Hammermann. “He certainly got input from a lot of people, but he’s the one who actually decided how to do it and how to fit it into what he perceived George’s vision to be. George was most interested in the aesthetics, and Tom tried to integrate the technical aspects into that.”

Holman’s memory is the same. “The architects and George made up what it looked like, but I did everything technical. I did the arrangement and proportion of the rooms and wrote a 500-page manual on what had to be in every room. In meetings with George, I laid out the building. For instance, there’s a central atrium area between the editing wing and the central machine core. I designed a more compact building. George took a scissors to it, cut it and put the atrium into it so that the machine room operators could see daylight.”

INNOVATIONS FROM THE INSIDE

As plans for the Tech Building took shape, Sprocket was pushing the envelope, developing new methods for film sound production. “We made a lot of really big leaps forward in the technology of how movies were made, like considering average theater noise,” Hammermann comments.

Summers sees the advances made by Sprocket as part of a particularly fertile period for film in the Bay Area. “There were some things happening



The first balsa model of the Tech Building.

oped Ranch were identified with nicknames. The valley in which the Ranch’s buildings now snuggle was called “the U-shaped valley,” while the area where the Tech Building now stands was “the Dump.”

**“You could shoot guns out
here no problem because
there was nobody around.”**

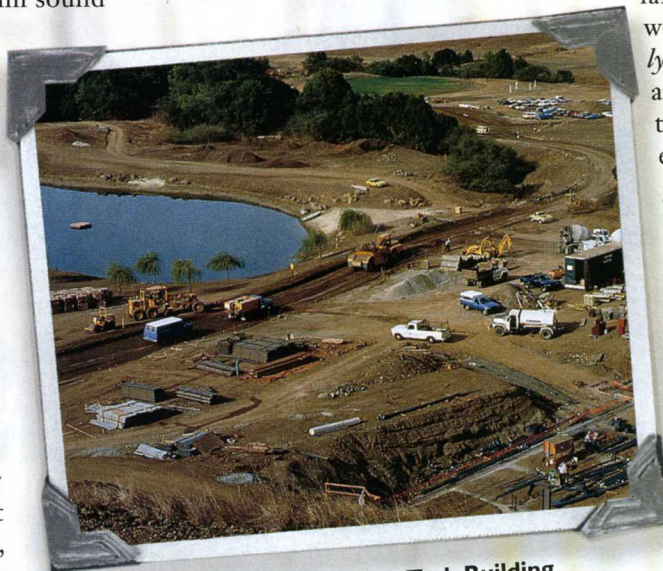
—Howie Hammermann

For the production of a film called *The Island*, some explosions were needed, and the Ranch, of course, was the perfect place to record. Summers recalls: “Randy [Thom] and David Parker were going to do some recordings, so they got Thane Morris and his partner from ILM, who were the pyrotechnics guys down there, and they came up with a whole coffin full of stuff like TNT and 40 percent sticks of nitroglycerin and were blowing up the Ewok hillside. [A part of

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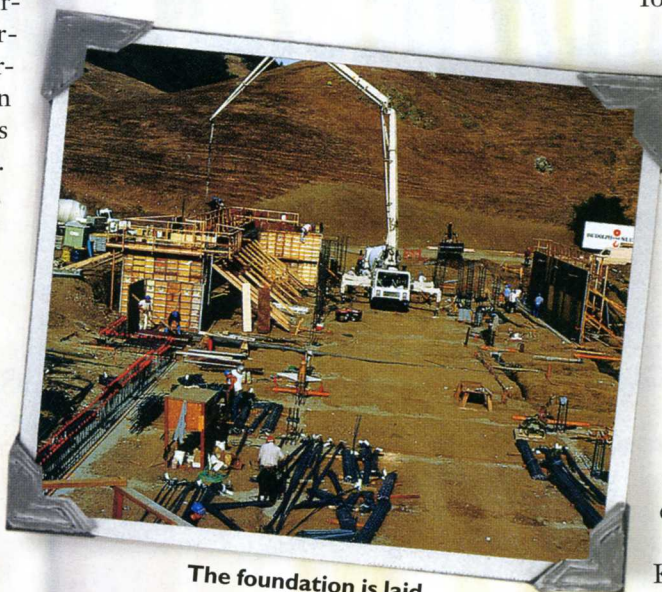
in Northern California film sound that we were carrying on with as well. Things that were happening at Zoetrope like the use of multitrack tape machines interlocked to picture, and the use of 2-track and multitrack locked editing systems," he explains. "Ben started working on the Synclavier very early on. This was very unconventional to Hollywood as far as sound went. People like Walter [Murch], who started a lot of that down at Zoetrope, and Richard Beggs were pioneering those techniques at that time.

"We already had multitracks," Summers continues, "but when we moved to C building, we were very involved in developing Q-Lock [an early tape machine synchronizer], and we began the work with center-track timecode." Hammermann eventually put center-track timecode heads on Sprocket's Ampex ATR100s and even on their TEACs. "The first one that I did, actually, I remember taking a cassette head, taking one of the tracks and kind of epoxying it in place on a Nagra plate to see if it would work, and it did," he says. They went on to more sophisticated variations, eventually including custom heads from Nagra, as well as working out how to stripe and erase the timecode without affecting the audio. The history of Sprocket Systems is positively littered with such innovations, a tradition that continues at Skywalker Sound right up through the genesis of the 6.1-channel Dolby EX surround format first used on *The Phantom Menace*.



Clearing space for the Tech Building.

In late 1985, Tom Scott and Tom Kobayashi came onboard to help bring the Tech Building effort to fruition. Scott had been an engineer at Wally Heider Recording in Los



The foundation is laid.

Angeles when he was brought to the Bay Area in 1972 to build the Record Plant (now The Plant) studios in Sausalito, just over the Golden Gate Bridge from San Francisco in the southern tip of Marin County. Scott left the Record Plant in 1978, only to

land soon after in the roiling waters of the production of *Apocalypse Now*. Even today, Bay Area audio denizens tell wild tales of this pioneering and sprawling effort, during which there was a good bit of intermingling between Lucasfilm and director Francis Ford Coppola's Zoetrope Studios. "I got into film mixing with *Apocalypse Now*," says Scott, "and never came back to music mixing."

After *Apocalypse*, while Scott was working on Oscar-winning films like *Amadeus* and *The Right Stuff*, Lucasfilm was, in his words, "just kind of lifting off: They were going down the runway pretty fast and the wheels were up. It was after *American Graffiti* but before *Star Wars* had really taken off." By the time the call from Lucasfilm came in 1985, Scott was well known over at Sprocket Systems.

"Tom Holman had been the chief engineer up to that point, and Jim Kessler had been running Sprocket in C building," says Scott. "The Ranch was well under way: Several buildings, including the Main House, were already up, and they were pouring concrete for the Tech Building. Doug Norby, who was leading the charge in terms of bringing in people, was looking for a manager who could run the division and a chief engineer who could get the building built and equipped."

Scott signed on, as did Kobayashi as Sprocket Systems general manager. Scott met Kobayashi the day they both arrived for their job interviews, thus bringing the number of Toms in the company to a likely confusing level. Fifteen years later, Scott and Kobayashi, like Summers and Hammermann, are still working side by side,

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only as president emeritus (Kobayashi) and vice president (Scott) of ednet (see "Technology Partnerships," page 52, for more on ednet).

"The interesting challenge for both Tom [Kobayashi] and me was the idea that Skywalker Ranch was going to be just for George's pictures, it was not going to be for outside jobs," says Scott. "The size of the Tech Building was designed to be filled with his projects pretty much up to capacity, and the charter was that it was all going to be digital. It was billed to me and Tom in 1985 that there was going to be no analog in the building."

Summers recalls the same ideas: "When we were coming to the Ranch, the plan still was that it would be five or six Lucasfilm projects a year—television, film, whatever—but it was all going to be George." Since Sprocket had for so long centered around Burt, Summers and Hammermann, some things in the new building were designed with the idea that it would be they, and not outside film sound people or other staff, who would be working in those rooms. "The mirrors we have on some of the projectors here were because we were going to thread our own projector, so the projector had to be on the same floor as the mixing room [as opposed to in a raised projection booth] so that we could run back and thread it."

A LITTLE TOO AHEAD OF ITS TIME

With Lucasfilm absorbing the growing fortune from the *Star Wars* and *Indiana Jones* movies, the Ranch and the computer division were being set up to carry out a futuristic vision of

film production, and it was to be done right.

"We heard from Doug Norby that his charter from George was to shoot for excellence; excellence was the prime thing," Scott recounts. "If there were two things and one was more expensive than the other but one was

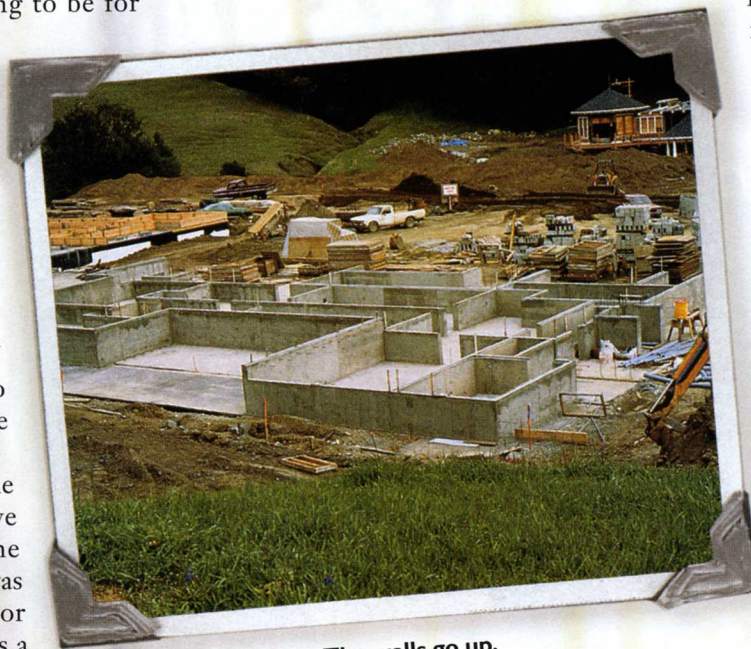
my God, we're going to pour all this money into this and it's never going to make a nickel.' So we put together a little economic analysis, and Tom took it to George, and George said, 'I've always wanted this. It's something I've always envisioned having at my disposal if I ever wanted it. Maybe we won't use it right away, but I want you to calculate what it would cost if I came back in five years and made this scoring stage according to the plans or if we go ahead and finish it with the rest of the Tech Building.'

"So we did that exercise with the architects and the construction people, and it was clear that it would be several million dollars more expensive to do it a couple years later," he continues. "At that point, George said, 'I'm paying the bills, I like this, I want this and it's cheaper to do it now, so let's do

it.' So we built it and it sat empty for the first year or so that we were out there. It was a great place to jam."

It was a heady time filled with ambitious projects, but the hard realities of production brought changes to some of the fundamental precepts on which Sprocket was proceeding. As Moorers' team interacted with the production crew at Sprocket, the list of features and facilities that would be needed for the ASP to work for real films grew huge. Since the project was just preceding the onset of DSP chips, the hardware was extensive and power-hungry. "I think Tom Holman had an idea that the ASP could be hard to pull off," says Hammermann.

It became evident that the gap between what was possible and what was practical was larger than had been thought. "The folks at the Droid-Works [an evolution of the computer division] were all academics, and they



The walls go up.

better, get the better one."

One landmark achievement that came out of this period was the Tech Building's famed Scoring Stage. Recalls Scott, "When we [he and Kobayashi] signed on, neither one of

The hard realities of production brought changes to some of the fundamental precepts on which Sprockets was proceeding.

us saw an economic need for the Scoring Stage. We couldn't figure out how we would ever make money with it. While they were still pouring concrete, we started totaling up how much it was going to cost to build the Scoring Stage, and we thought, 'Oh

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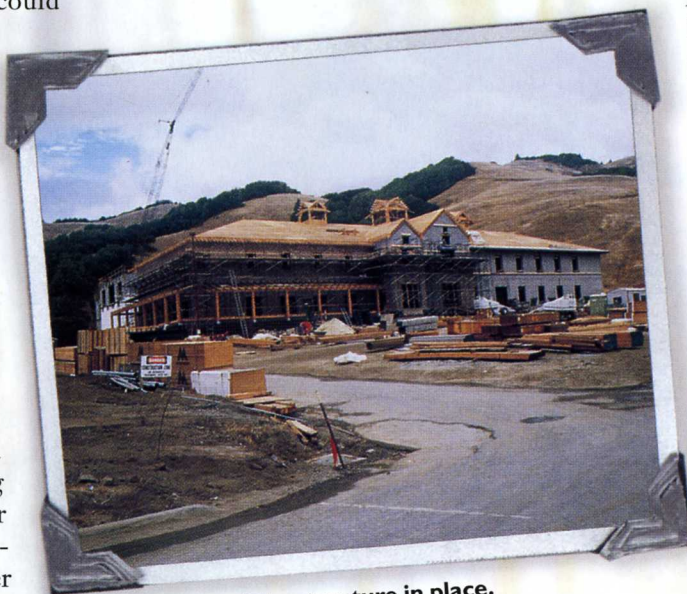
knew that, fundamentally, this [all-digital production] could be done and they could prove that it could be done," explains Scott. "But over the first six or eight months that we were there, it became quite obvious that the difference between demonstrating it and actually using it on a production was a much wider gulf than anyone had anticipated."

The computer division could no longer survive strictly as a research arm and was broken into independent companies, some of which, like the aforementioned Pixar and LucasArts, remain today. The ASP project had become part of a company called the DroidWorks and the ASP machine recast as the SoundDroid. DroidWorks was also developing a digital video editing system called EditDroid. A manufacturing setup had been put together near C building, and production of EditDroids was under way. Eventually, 30 would be built.

Holman's design of the Tech Building was proceeding under the presumption that the facility would be filled with SoundDroids. "I got C building running for *Jedi*, went through *Jedi*, worked on TAP [Theater Alignment Program] and THX, got those up and running and then really turned my concentration to the Ranch," explains Holman. "At that point, I really became Andy Moor's 'end user,' if you will. I was designing the building around those systems and bugging him for information: 'How much space are we going to need for this kind of thing?...Look, I need to store premixes here...It's going to take this many hard drives...' and so forth. I did calculations on the size of the data store, how you were going to run the data around the building, whether SCSI was at its

limit, how you're going to get things onto Ethernet—pretty straightforward stuff."

The answers were daunting to say the least, with heavy implications for the building's infrastructure. At the time, disk drives were just starting to get smaller than washing machines. So, according to Scott, Holman's



The structure in place.

research showed the storage needs for film production to be problematic: "[Holman's] point was that it was roughly the same amount of storage that the Bank of America had, so it

The Ranch and the computer division were being set up to carry out a futuristic vision of film production.

was not out of the question to come up with computer gear that could store enough data for one film. The square footage required, thinking about those lines and lines of those Maytag-sized drives, was quite large."

Holman also cites the tremendous physical demands of the equipment:

"One of those racks of gear was going to take 15 kilowatts. They take a lot of cooling. The central machine rooms [at the Tech Building] have enormous coolers; that was all based on the digital technology and its increasing concentration as time goes by, and that [need for heavy cooling] is still true. They probably have not yet used those air handlers to their capacity, but in ten or 20 years they probably will. The great big central core [of the building] is one big flue for heat. That's the ultimate limit on the process."

The all-digital vision was simply too far ahead of its time to work down in the trenches of real-world post-production. Kobayashi had to break the news to Lucas, Norby and their staffs. The immediate impact was on Lucas' upcoming projects, *Willow* and *Tucker*, which would now require immediate acquisition of traditional analog equipment, but there were more far-reaching effects for the facility that had been built for digital.

GOING COMMERCIAL

A sharp left turn was clearly needed, but, as Scott relates, a U-turn was not: "We didn't want to completely pull the plug on the digital dream, so the idea was to divide the Tech Building in half, since it was conveniently built with two wings. The North half will be saved for later and will be equipped with digital; it will be our digital laboratory as things become available. The South half and the central machine room will be filled with dubbers and will be able to do traditional film editorial and mixing until such time as digital happens. And that's been pretty much the way it's gone out there since then."

Because the Tech Building was only

Farmhouse to Ranch

partially functional, *Tucker* was mixed at the Ranch, but *Willow* was mixed back at C building. The effort of completing these two projects brought home another harsh reality: there was no way that Lucas could do enough projects to single-handedly keep the Ranch busy. Again, it was the Ranch's infrastructure that had to change, as Scott reports: "There was the whole question of how the Tech Building, which would now be dealing with

outside people, was going to fit in with the operation of the Ranch, which was meant to be a closed environment. All the security systems, meals, parking and traffic were designed one way, and now we were saying, 'Hey, we're going to have a 100-piece orchestra out here tomorrow, and 200 people you never met before are going to come out here for four hours and then they'll go away.' There was a lot of meeting time and organization and reorganization to try and take this place that had been designed for one thing and open it up to a different process. At some of those big scoring sessions it was all hands on deck; everybody that the security forces had ever employed was brought back on an hourly basis. That, and then putting people up. When you bring somebody up from Los Angeles and put them in the nearest Holiday Inn, you're still ten miles away from the Ranch, so the idea was, 'Well, we'll put them up at the Ranch, and Ranch Hospitality and Security will take care of making them nice bed-and-breakfast situations.' To this day, directors from James Cameron to Clint Eastwood make use of the guest house at the Ranch.

It was around this time that Sprock-

et Systems was set up as a separate company and renamed Skywalker Sound. As wrenching as the shift to becoming a commercial outfit must have been, Skywalker Sound quickly established itself as one of the top-tier post-production houses with work on films like *Terminator 2*, *Indiana Jones and the Last Crusade* and *Backdraft*. Not long after, Lucas' production of the *Young Indiana Jones* television series

on the Scoring Stage, putting on a private show at the end for the Tech Building staff.

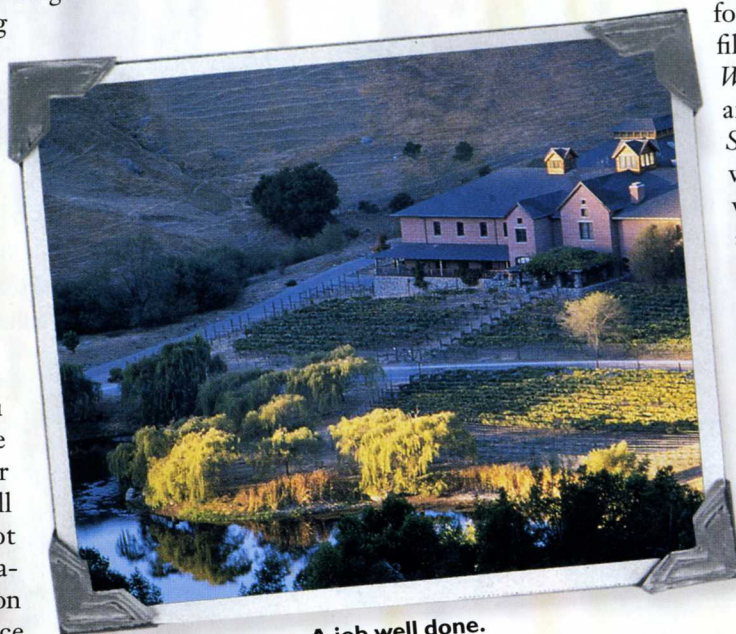
LEADING THE BLEEDING EDGE

As the years have gone by, the evolution of Skywalker Sound and the Tech Building itself has continued, always at the leading edge of technology and periodically swinging between concentrating almost completely on outside clients to focusing heavily on a Lucas-film project, such as the *Star Wars* special edition release and the production of the *Star Wars* prequels. As we went to press, shooting was wrapping up on the much-anticipated *Episode II*, with an 18-month post-production cycle set to commence.

With Burtt, Summers and Hammermann all still on board, the origins of Skywalker Sound are still well represented, but the crew is now much larger than the day Summers first stepped up to the beauty salon.

The Tech Building is now also home to the likes of a new generation of sound designers like Gary Rydstrom and Chris Boyes. The number of Oscars and other awards won by Skywalker's staff over the years is nearly enough to require an addition to the building, but for the time being, the Tech Building still seems to house everything comfortably.

When Letterman Digital Center becomes operational, Skywalker will open a satellite facility there and yet another chapter will unfold. And so, as they say, the saga continues.



A job well done.

shifted emphasis back to him, with virtually the entire North wing being dedicated to those shows.

The Scoring Stage branched into pop recording as well as feature work, with clients including the Grateful Dead, Isaac Stern and Linda Ronstadt, whose engineer was George Massenburg. Massenburg's credibility as a top engineer and producer caught Lucas' ear when he explained to the filmmaker the things that were needed to service pop clients. Massenburg even designed some diffusors that are still in use on the Scoring Stage. (The story is told of his liking the diffusors so much he tried to buy them off of Skywalker.) Mick Jagger rehearsed for one of his tours

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