SURGICAL

A just-published book by an award-winning journalist looks in intimate detail at the work of Dr. Hardy Hendren, a 1950 graduate of Dartmouth Medical School. These excerpts from the book explore the miracle of pediatric surgery and the mind of "a surgeon's surgeon: one of the world's best" — to use the words of C. Everett Koop.

By G. Wayne Miller

As a colleague pays tribute to him — going so far as to call him a hero, and not gratuitously — Hardy Hendren sits in a crowded auditorium in Boston, across town from Children's Hospital. In a moment, Hendren will receive a medal. He will deliver a lecture no one else in the world could give. He will get a standing ovation. And when he's done, fellow surgeons will line up to shake his hand.

Hendren is an average-size man. His arms are muscular, his grip strong. His nails are clipped and clean, never anything but clean, but his fingers give no further clues to his profession or the prominence he has in it. His hair is thinning and graying. His skin is less wrinkled than that of most men his age; for this, he can thank a career spent indoors. Hendren's eyes are grandfatherly today, benevolent, for he is among admirers and friends. When he's angry — and nothing angers him more than lies or stupidity — his eyes sear.

Hendren's nickname is Hardly Human, a name he finds amusing. Some consider it a slur, a reference to his bedside manner, which would not be mistaken for Marcus Welby's. Others wonder if it isn't an allusion to his memory, which allows him to recall names, middle initials, and the most minute details of even run-of-the-mill operations he performed when Eisenhower was president. Not everyone who's encountered Hendren considers that steel-trap memory of his a blessing.

A more probable explanation for Hendren's nickname is his OR stamina. Well into his sixties, Hendren can go 24 or more hours on the most complicated reconstructive operation, stopping only once or twice to empty his bladder and eat a hot dog or microwaved popcorn or some other food similarly rich in carbohydrates.

The introduction complete, Hendren comes forward, smiling while the Orvar Swenson Medal, a bronze medallion, is placed around his neck. When the applause subsides, Hendren takes the podium.

"I would like to talk on the subject of cloaca, which, as you know, is a congenital persistence of an early embryological stage where everything empties into a single chamber," Hendren says. "Cloaca in Greek is the word for sewer.

"This is the second cloaca that I had occasion to see, many years ago, in 1955," Hendren begins, as the first slide flashes onto the screen. Not so long ago, rectal abnormalities imposed a life sentence as a freak — if the victim somehow managed to survive.

The basic problem, understood more than a century ago, was that instead of having three openings on their bottoms — anus, vagina, and urethra —

This article is excerpted from The Work of Human Hands, *by G. Wayne Miller. Copyright 1993 by G. Wayne Miller. Reprinted by permission of Random House, Inc. Miller is a staff writer for the Providence (R.I.)* Journal-Bulletin. *The book, which came out in mid-February, is subtitled "Hardy Hendren and Surgical Wonder at Children's Hospital." It was based on a six-part* Journal-Bulletin *series that won the Distinguished Writing Award of the American Society of Newspaper Editors.*

Intent on the work at hand: Eminently at home in a surgical milieu, Hardy Hendren has been chief of surgery at Boston Children's Hospital since 1982.

WONDER

WILLIAM DABY / PROVIDENCE JOURNAL-BULLETIN

When Hendren returned to Dartmouth to resume his undergraduate education, he and his bride, Eleanor, lived at Wigwam Circle. Their apartment was a single room with two chairs, table, hot plate, sink, and a sofa that converted into a bed.

cloaca babies have only one, the urogenital sinus or, simply, the cloaca. From there, the variations are stunning for such a rare defect — approximately one in 50,000 live births is a cloaca baby. Cloaca babies may have a single vagina or two vaginas or no vagina. There may or may not be ovaries and Fallopian tubes, which may or may not connect to a vagina — if there is a vagina. Cloaca babies may have two kidneys or one kidney. Their ureters may be properly connected to the bladder, but frequently they are not. The bladder may be properly formed — or so deformed as to have no functional value whatsoever. The rectum may communicate with the vagina or the bladder by an abnormal passage called a fistula. Or it may end blindly before reaching the bottom.

In one respect, cloaca was like other formidable surgical problems: it would not be solved by a single brilliant stroke. The solution would be evolutionary, with dozens of surgeons contributing over a period of many years. Although it took Hendren to put the final pieces in place, progress had been made before him. Surgeons mastered the colostomy, which gave life, at least to babies with less severe cloacal anomalies. They refined the technique of making a functional anus and became progressively better at repairing bladders, urethras, and ureters. But not until the 1960s did the increments add up to a base of knowledge and technique broad enough to support the vision of a young surgeon who'd trained at both Children's Hospital and the Massachusetts General.

Hendren has, by far, the largest series of cloacal patients in the world. By summer 1992, his list had 113 children and adults from 25 states and 12 foreign nations.

As Hendren advances his slides, across the screen flash case histories of babies, toddlers, and teenagers, each an incomplete child whose parents brought her to Hendren with the same hopes and prayers the religious carry to Lourdes. Some are virgin cases, presented shortly after birth with the hope that Hendren could heal them. Those are the lucky ones. The less fortunate have been on long, expensive, and ultimately unsuccessful surgical odysseys to other hospitals, to other so-called experts. They have come to Hendren wearing diapers and bags, they and their families aware that in the eyes of the world they are freaks.

Hardy Hendren could not remember a time, not even in the farthest reaches of his midwestern childhood, when he'd seriously wanted to be anything but a surgeon. Surgeons helped people. Surgeons were their own bosses. Surgeons always had work, which meant a great deal to a child of the Great Depression. Surgeons had an extraordinary grasp of anatomy, an endlessly interesting subject. They were intrigued by the harmony of organs and systems that make the creature work.

In Kansas City, Mo., his hometown, Hendren had lived near Loose Park, site of a minor engagement of the Civil War. There was a pond in Loose Park, lily padded and home to frogs. One day when he was in the fourth grade, Hendren caught a tadpole.

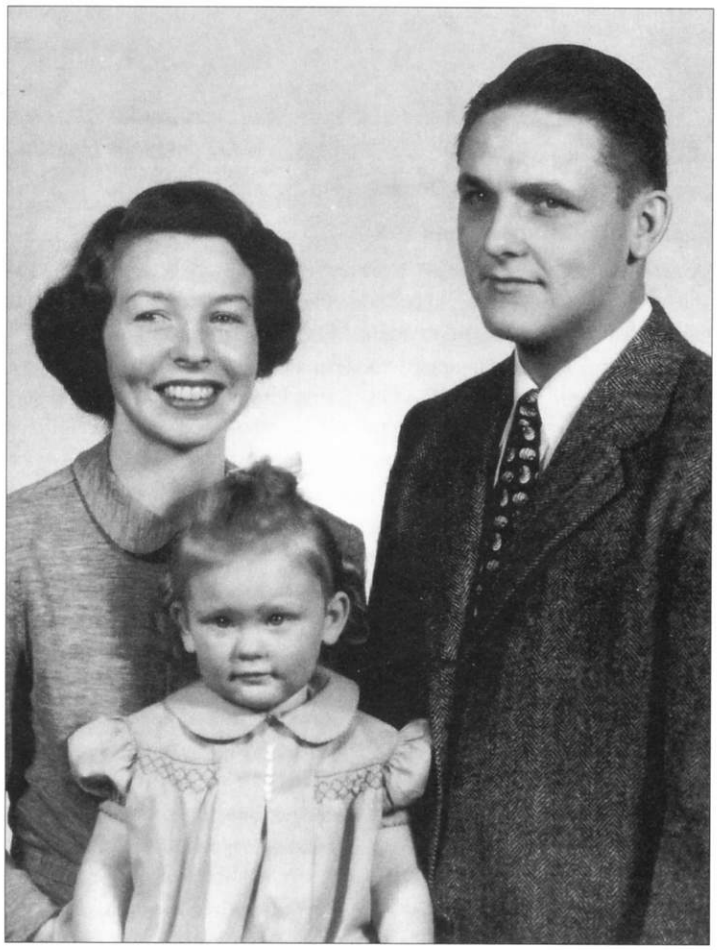
I wonder what it looks like inside? he thought as he held it, wriggling, in his hand. *Why not cut it open and see?* With his pocketknife, Hendren did. *There's the blood. That part beating there must be the heart. Look at the veins.* Never mind that when he went home for lunch, his mother had cooked macaroni, creating an unfortunate association with tadpole intestines that kept pasta off his plate for decades. Something else that would last had been created too.

After grammar school, Hendren went one year to Kansas City's Southwest High School, then to Woodberry Forest in Virginia. After a semester at Dartmouth College, the Navy took him. He was 17. America's mounting successes slowed pilot training, and war's end gave candidates a free ticket out, but Hendren had set a goal: he wanted his wings. He had to get them. In October 1946, after repeated landings on an aircraft carrier, he did. He was a naval aviator.

It was called Wigwam Circle. It was 104 units of housing, arranged in rows that resembled the spokes of a wagon wheel. It was prefabricated and cramped, roughly 200 square feet per unit, smaller than a garage. It was heated by kerosene space heaters that you filled, at a nickel a gallon, from barrels outside the front door. Once used to house workers in a wartime shipyard in Maine, Wigwam Circle had been transported to Hanover, where Dartmouth was being flooded with veterans coming back to campus with their new spouses. The war was over. Building futures and starting families were the orders of the day.

In early 1947, when Hardy Hendren returned to Dartmouth to resume his undergraduate education, he and his bride, Eleanor, lived at Wigwam Circle. Their apartment was a single room with two chairs, table, hot plate, sink, and a sofa that converted into a bed.

Economically, the newlyweds were struggling. Hardy had the GI Bill, but that was only $90 a month. What would be their salvation would be the Calvinist ethic. *We'll just have to work harder,* Hardy thought. *We'll do whatever we have to.* Hardy got a job in the medical library, checking out books for 65 cents an hour. On reunion weekend, he worked as a dormitory clerk. Eleanor went to a mill-end store, bought fabric at fire sale prices, and turned out drapes, which she



The early years: Top, Hendren was determined to earn his wings as a naval aviator before leaving the service; this photograph was taken in 1945 in Corpus Christi, Tex. Bottom, Hardy, Eleanor, and two-year-old Sandy during Hardy's years at Dartmouth Medical School.

sold. Hardy bought fishing flies, which Eleanor sewed onto neckties she'd made, and Hardy's father bought the whole lot, some 250 in all, for Christmas gifts for his customers and employees. Hardy made cobblers' benches and sold them to a Hanover antiques dealer, who advertised them in her window as "Reproductions by a Dartmouth Student." One year, Hardy and a friend bought a truckload of furniture at an auction, and after painting it Dartmouth green they resold the furniture, at a significant profit, to incoming freshmen. Hardy and that same friend bought a cow, had the animal butchered, and filled a frozen food locker with cheap steaks and roasts. Hardy's father sent the newlyweds a check for $100 every month. Hardy and his bride sold their blood, for $25 a pint.

One way or another, they thought, *we're going to make it.*

Hardy and Eleanor had hoped for a large family, and the beginning of it came soon enough. On October 22, 1947, Sandra McLeod Hendren was born, three weeks premature, in Hanover. Eleanor and Hardy took Sandy everywhere. The Hendrens did not have a car, but you didn't need a car in Hanover in 1947. You could walk to the grocer's or to the movie theater or to the Phi Delta Theta fraternity to have a beer on a Saturday night. If you had a baby, you could put her in a carriage and take her along, too. When winter set in, Hardy fashioned a sled out of a carriage and runners. If the snow got ahead of the plows, they could still get where they had to go, this family of three.

Sandy was Daddy's little girl. Eleanor had Sandy's care during the day, when Hardy was at class, but Dad took over the nighttime changing and the feeding: a bottle of milk warmed on the hot plate. Hardy read to Sandy as she lay on his lap. He sang her to sleep. He cranked the Victrola and played children's songs for her, and it was apparent, even when she was a baby, that Sandy would love music for as long as she would live.

After graduating from Dartmouth College, Hendren enrolled in Dartmouth's two-year medical program, from which he graduated in 1950. That summer, he, Sandy, and Eleanor, pregnant again, drove to Boston in their first car: a 1950 Ford sedan, a gift from Hendren's father.

Hendren was soon to be a third-year student at Harvard Medical School. Even in that crowd Hendren stood out. He had a pluck and poise that enveloped those who came near him. Hendren did not have charisma, not in the movie screen or political sense, but he had a sense of humor and impeccable manners and speech, and he never had any trouble filling whatever space he happened to be in.

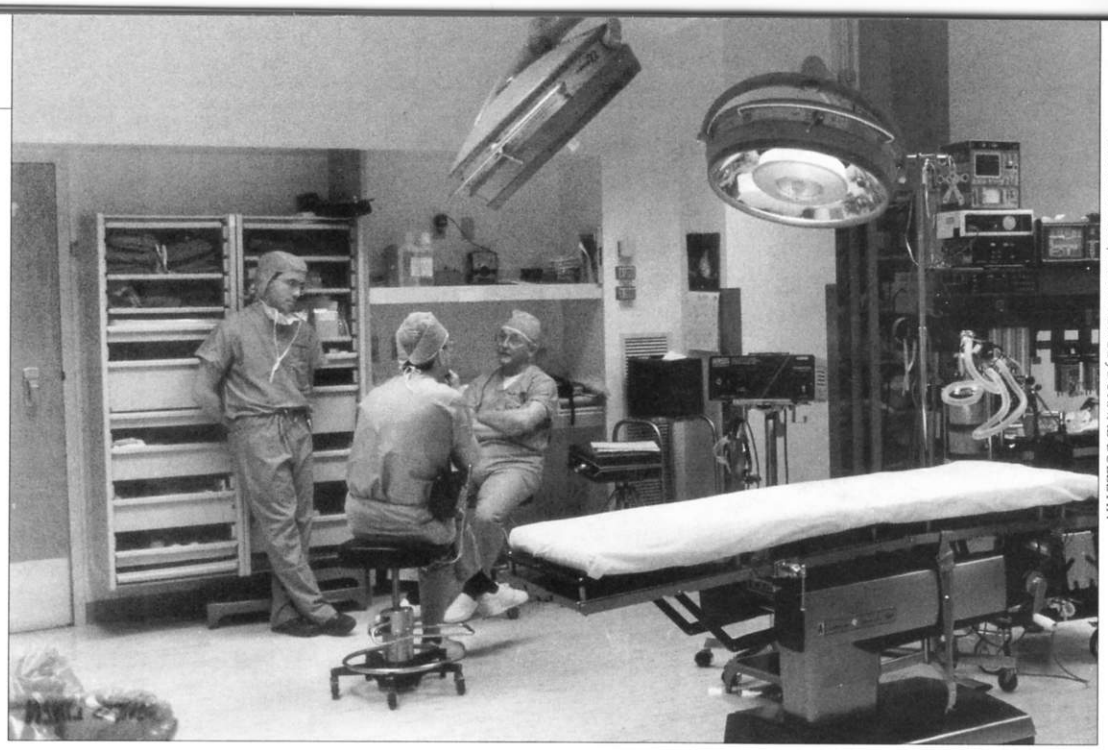
In the fall of 1951, his senior year, Hendren took on the medical establishment. What provoked him was the system by which medical-school seniors wound up in the hospitals where they served their internships. Students were free to apply wherever they wanted. Hospitals were free to recruit. In a profession priding itself on its order and control, serendipity ruled.

A new plan was to take effect in the 1951-52 academic year. Hendren and the 6,200 other medical-school seniors nationwide would be the first students whose internships would be decided accordingly.

One of the big supporters of the new plan was the dean of Harvard Medical School, George Packer Berry, who, at a meeting of the entire senior class in the fall of 1951, outlined the plan. Hendren listened. The more he listened, the more he saw flaws. The first run, Hendren concluded, was fair: students' first choices were matched with hospitals' first choices, and everyone went away happy. But the way the second run had been structured, Hendren believed, was weighted against the best students.

On the second run, a less highly-ranked student would be matched with a highly desirable hospital if that student had placed the hospital at the top of his list. And that hospital, now filled with "alternates," would no longer be available to a highly-ranked student who'd placed it second on his list and had not been accepted by his first choice.

Many times in 40 years of surgery, Hendren has gotten by on three hours of sleep or one hour or no hours at all. He has learned to rely on the catnap, taken on a lounge sofa, a bed, an empty crib, or just flat on his back on his OR floor. Simply by closing his eyes, he can will himself to sleep.



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At home in the OR: Hendren (right) sometimes spends more than 24 hours straight in the operating room on complex cases. It is perhaps such stamina that has earned him the nickname "Hardly Human."

Hendren rose to speak. He hadn't gotten far when the dean cut in on him. "Excuse me, sir," Hendren said. "I don't want to be disrespectful, but you've had 30 minutes to talk here without interruption, and I need five minutes to explain this without being interrupted." Hendren went to the blackboard and drew a diagram of how he would revise the plan. Again Berry challenged him. "Well, excuse me, sir," Hendren said. "Let me sample the entire senior class, here in the room. Is there anybody that doesn't agree with what I've just said?" There wasn't. Berry was incensed. "I don't give a good goddamn if any of you get your internships," he said as he stormed out.

After the meeting, Hendren got together with seven other students. Calling themselves the National Student Internship Committee, they presented a three-page letter to Berry outlining a better way to organize the match.

Berry was even more incensed. But the students were playing for keeps now. Borrowing $3,000 from his father, Hendren hired a secretary and polled every medical school in the country. The great majority supported the proposed modifications, and the matching plan was changed to reflect the students' wishes.

On the night before the first matches were to be made, in March 1952, Berry told Hendren that his career at Harvard Medical School was finished if there was any problem, even the slightest little problem, with the maiden run. There wasn't. For 40 years, the system Hendren and his group refined has been used for internships.

While at Harvard, Hendren heard Robert Gross lecture on an emerging new discipline, pediatric surgery, and his contributions to it: among them, repair of patent ductus arteriosus, the operation that had inaugurated modern heart surgery. Hendren knew, listening to Gross, that he wanted to go into pediatric surgery.

Hendren graduated cum laude from Harvard Medical School in 1952 and was matched, through the system he'd had a hand in refining, with his first choice for internship: Massachusetts General Hospital, where Edward Churchill was chief of surgery. Hendren stayed with Churchill as an intern and then a general surgical resident for two and a half years, then studied pediatric surgery and heart surgery with Gross for two years at Children's. In 1957, he returned to the General as senior surgical resident. In 1958, he was an American Cancer Society fellow and Churchill's chief resident. By 1959, when he returned to Children's to be Gross's chief resident for a year, Hendren had completed seven years of surgery.

In his year of chief residency, he performed more than 300 operations and supervised 19 residents who operated on nearly 800 cases of their own. Gross paid Hendren $10,000 for the year — a staggering sum for a chief resident anywhere, in any specialty, in 1959. Some speculated that Hendren might succeed Gross someday.

When Hendren finished his residency, Gross offered him a position on the staff, but his first day on the job Hendren found that his two scheduled operations had been cancelled by Gross. "You're doing

too much," Gross told him. He advised Hendren to do something else for a while. That afternoon, Hendren went across town to Mass General. Churchill welcomed him back. "I want you to start pediatric surgery here," he told Hendren. It would be 22 years before Hendren returned to Children's — as chief of surgery. In 1985, he would become the first Robert E. Gross Professor of Surgery at Harvard. By then, he would be the world's expert at rebuilding cloacal babies.

Hendren's office is a suite of six rooms. His inner office is toward the rear of the suite. It is not the neatest space at Children's Hospital. It does not feature the regimental tidiness of his OR. An absorbed mind occupies Hendren's office, a mind with too much spinning through it to be concerned with whether the paper clips are in their proper place.

Hendren has a desk, cumbersome and wooden and befitting a CEO, but he doesn't much care for it. His work station is a round table with telephone and dictating machine and a brass lamp, onto which his secretaries tape notes requiring his immediate attention when he emerges from the OR, usually after they've gone home for the day.

On the walls of the inner sanctum are the requisite certificates and diplomas. There are pictures of Eleanor and their children and grandchildren. There is a picture of their boat, NOMO, which they bought when David, their last child, had finished his schooling and they finally had no more tuition to pay. There are pictures of Hendren's two mentors — Churchill and Gross. There is a painting of a fighter plane circling an aircraft carrier and a certificate proclaiming Hendren's status as a naval aviator.

On the door is a letter from a patient. Hendren is always receiving thank-yous. They come typewritten, decorated with hand-colored flowers, scrawled in childish script across sheets of ragged-edge paper, or accompanied by bottles of Chivas Regal, his favorite whiskey. Hendren personally answers his letters, and over four decades he's never thrown one out. Every so often, he posts a new favorite on his door.

What is not displayed is Hendren's curriculum vitae. Hendren has his priorities. The first page of his CV is personal, not professional. Like many men of his generation, he built his career on the foundation of family — even though his moments with his wife and children have been scarcer than a younger generation would deem acceptable. Below Hendren's date of birth, February 7, 1926, is the name of Eleanor McKenna of Wilmington, Del., whom he married four months after they met. Next are the names of their living children, all sons. Hardy and Eleanor's only daughter, Sandy, was a nurse. Should you ask, Hendren will tell you how his girl died: in 1984, after a lifelong battle with juvenile diabetes, a disease no surgery, not his or anyone else's, could cure.

"I see we have a problem here." Hendren smiles and welcomes Lucy Moore and her parents into his examining room. He's reviewed the records sent from Florida. He knows the broad parameters of what's facing him with 14-month-old Lucy. *Cloaca baby. Number 104.*

"OK," Hendren says, "why don't you get her up on the table and get her undressed."

Hendren spreads Lucy's legs and investigates as deeply into Lucy's cloaca as he can without instrumentation, feels her featureless bottom, checks her stomata. Already, he is developing a strategy.

Single opening, no evidence of a vagina. . . . I wonder if she has one, tucked up in there somewhere? Divided colostomy . . . someday, we'll have to take that down. Multicystic kidney . . . that'll have to come out. And we'll have to check on her spinal cord. It's going to be a tough one.

As Beth Moore dresses Lucy, Hendren talks through his plan. He does not speak in what-ifs, does not outline alternatives or choices the Moores must make. This is how he intends to reconstruct Lucy Moore, cloaca number 104. Tomorrow, he says, he will take Lucy into his operating room and get a good look with his scope. He will videotape his endoscopy, letting the Moores see it if they so desire. He will send Lucy to uroradiology to further define her anatomy. He will seek an opinion on her spinal cord, often defective in cloaca babies. And in about six months, Hendren will set aside an entire day and night to rebuild her.

No question, Hendren thinks, *it's going to be a tough one.*

When next he saw Lucy, Hendren would have several missions in addition to the fundamental mission of any surgery — which is getting the patient through alive, uninfected, and headed home in an improved condition. First, he would have to discover, through dissection, exactly what he had to work with. He would have to find or fashion a vagina so that someday Lucy could have sexual relations. He would hope to find an ovary or two, one or two Fallopian tubes, and a uterus. He would hope to find a way to connect them to whatever he came up with for a vagina. He would have to make an anus and hook up her rectum so that, in time, she could be continent of stool. He would have to make a urethra and, possibly, tailor the bladder neck so that she could be continent of urine. Later he would have to get rid of her stomata.

I will do whatever I can so that she doesn't have to go through life leaking or wearing a bag.

He would have to make Lucy's genitalia appear outwardly normal so that when she was old enough to know, about the time she was three or four, she would not consider herself different from other little girls.

He would have to take Lucy apart in order to put her together again.

Before the Moores went home to Florida, Dr. Hendren gave them a date for Lucy's reconstruction: January 18, 1991.

On the day he is to rebuild Lucy Moore, Hardy Hendren rises at 5:15 a.m. He has had six hours' sleep, a good night for him. So many times in 40 years in surgery, Hendren has gotten by on three hours or one hour or no hours at all. He has learned to rely on the catnap, taken on a lounge sofa, a bed, an empty crib, or just flat on his back on his OR floor. Simply by closing his eyes, he can will himself to sleep.

Hardy breakfasts with Eleanor in the two-bedroom apartment they keep a few blocks from Children's. This is their home during the week, when time is too precious for the commute to their residence in Duxbury, 45 minutes under the best of traffic conditions. Eleanor cuts her husband's grapefruit, pours his juice, fixes his oatmeal and his toast, which he takes with honey. As long as they've been married, she has fixed his breakfast. And every night, she's had dinner waiting for him, no matter what time he's gotten in. Even in the last several years, when Eleanor and a friend have run a successful business — a wholesale clothing company called Cycle Venture, Inc. — she's happily prepared her husband's meals. Hardy, who can assemble a child, barely knows how to cook.

As CNN brings the latest word of the war, Hardy works out on a Nordic Track exercise machine. After shaving and showering, he dresses in a brown pin-striped suit.

A videotape of what a smart bomb can do is playing on TV. "Do you

Hendren makes no false starts. Down through skin he goes — through two layers of fat, through fibrous and stringy muscle — deeper and deeper into Lucy, toward major organs and anatomic confusion and a series of decisions that will fundamentally affect this baby for the rest of her days.

see that?" he says to his wife. "Isn't that unbelievable?" Hendren cannot break away. But at 7:30, Lucy's appointed hour, he calls the OR to give the word to begin what will be about an hour of anesthesia preparations.

In the men's OR locker room, Hendren strips to undershirt and plaid boxer shorts. He pulls on support hosiery, which will help control the swelling after he's been on his feet longer than most people have been awake for the day. He dons his scrub shirt and scrub pants and, finally, his shoes. Many surgeons operate in Nikes or Reeboks, but not Hendren. He wears old-fashioned surgeon's shoes, made of white deerskin. He regularly treats them to liquid polish. And when his shoes are dirtied from blood or iodine-based germicide, universal fluids in any OR, he scrubs them with soap and water in the locker-room sink.

Hendren puts on his cap and ties the bottom of his mask. Dressed for work, he goes to the lounge. Hendren used to drink eight or ten cups of coffee a day, but in recent years caffeine began to give his hands a fine tremble. He drinks half a cup of coffee now, downed in a single swallow. After shooting the breeze with a member of his department who also trained under Gross, Hendren heads down the corridor to Room 17. He secures the top of his mask so that his nose and mouth are covered and walks through the door.

Theoretically, it would be possible to accomplish what Hendren plans today in two or more smaller operations. Other surgeons who have taken on a cloaca have done just that. The advantage is virtually all to the surgeon, who doesn't have to worry about being 12 hours into something with no end in sight. Conceptually, it seems easier to isolate and dispose of problem A first, then problem B, and finally problem C. The flaw in the rationale of A-B-C, as some surgeons have discovered to the detriment of their patients, is that in going back for problem B, you may unavoidably damage some of what you accomplished in solving problem A. Before Hendren developed his passion for cloaca, other surgeons had tried reconstructing children by first pulling through the colon and building an anus. But they found it was virtually impossible to go back in to work on bladder, urethra, and vagina without wrecking some of their colon work.

From his decades of experience, Hendren has coined a motto, which has become a recurrent theme in many of his lectures: "Small operations for big problems don't work."

It's much better, when you're dealing with adjacent structures, to deal with it all at once and not get into a previous repair when you're doing your subsequent repair. I have preached for 15 years that you don't do that.

8:45 a.m. As the anesthesiologists continue their preparation, Hendren leaves Room 17. Moving toward the waiting room, he observes, "This is probably the only child in the world undergoing this particular procedure on this particular day."

Hendren finds the Moores. He brings them into the office of the surgical-liaison nurses. "She's going to sleep fine," he says.

Everyone sits, the Moores on two chairs, Hendren behind the desk. On the desk is a bowl of candy, an overstock from Halloween.

"Anybody want candy?" Hendren asks.

No one else does. He takes a fistful.

"OK," he says. "Now what is your understanding of what we hope to accomplish today?"

"You're going to do the best possible job to give her a working anus and a working vagina and while you're at it, take out her bad kidney," Beth says.

Hendren explains his game plan. It is a rough sketch, short on detail, long on flexibility. It's not that Hendren doesn't like briefing parents. But how much can you say if you don't know yourself precisely what you're about to do?

"We're going to try to come up with a vagina, rectum, and urinary tract that work," he says, letting it go at that.

He takes a sheet of paper.

"Now," he says, an edge suddenly in his voice, "I've got to do this painful business of an operative permit. I hate it. For 35 years I did surgery — probably an average of 500 cases a year — without an operative permit. Today, we have to do it because behind every patient is a lawyer advertising 'Sue your doctor.'"

Beth says, "We'll sign your permit, and we don't believe in suing."

Hendren doesn't write yet.

Merely pronouncing the word *sue* sends him into the stratosphere, where he will tell his latest lawyer-as-scumbag joke or deliver his five-minute exposition on medical malpractice, realm of parasites. Hendren's three oldest sons are doctors: Douglas, an orthopedic surgeon in California; William, chief of cardiac surgery at the Graduate Hospital in Philadelphia; and Robert, a urology resident at Mass General. David, his fourth son, chose law — corporate law. "If he'd have gone into malpractice," Hendren has said, "he'd have had four people in the family wanting to turn him into a boy soprano."

On his complicated cases, Hendren does not use a standard operative-permit form. Nor does he ordinarily use the words *permit* or *permission*, since they might imply that the surgeon, and not the family, initiated the proceedings. His preferred term is *oper-*

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Tricks of the trade: Hendren uses a number of techniques to minimize fatigue after long hours in the OR — such as resting his wrist lightly on the patient and holding scissors across his palm, like chopsticks.

ative request. What value that might have in court is untested. Before his two suits, both filed in 1985, he never wrote one, and he hasn't been sued since.

Hendren writes, reading as he goes along, asking questions.

"Do you know what the risks are?"

"You could break the bowel."

"It could leak. It could stenose. It could not work. All sorts of things. And we have anesthesia catastrophes. Rarely, but they can occur."

Beth and Jack sign Hendren's form.

Hendren stands, takes one last handful of candy corn, and heads for the OR door. "We'll go down and do our best," he says.

"We have faith in you," Beth says. "That's why we're here."

Does he have any idea when he will be done, the Moores want to know?

"When the last stitch is in," Hendren says.

With one single, unhesitating slice, Hendren cuts Lucy's blank bottom along a line from the spot where he's drawn her anus down to the base of her clitoris. Hendren makes no false starts, no wasted movements, no mistakes. Down through skin he goes — through two layers of fat, through fibrous and stringy muscle — deeper and deeper into Lucy, toward major organs and anatomic confusion and a series of decisions that will fundamentally affect this baby for the rest of her days.

Lucy's open wound is the size of his fist, a deep valley of brilliant red, glistening in the glare of headlamp and twin overhead lights. "There's the sphincter," Hendren says. "I want you all to see this because this is a very nice sphincter here. See that thick muscle there? See it? It runs all along there."

Hendren cuts again. He's into tricky territory now. He's opened the urogenital sinus, or cloaca, which many hours later he'll refashion into a urethra. He's down to the region around the bladder, where Lucy's rectum ends in an abnormal attachment to the bladder neck. He has to separate the two, rectum from bladder. Doing so will require the most meticulous work. Straying from the proper plane of dissection — where the tissue layers meet — could result in an inadvertent hole in the bladder, and even if the hole were seen and closed, it could reopen later, becoming a fistula, a difficult complication that could cause leakage and infection.

Before starting to free Lucy's rectum, Hendren stops to ponder some tiny pits on the wall of the cloaca that he saw with his endoscope. Again, he tries to maneuver a tiny probe up into them to see if they lead anywhere. The probe won't go.

"What are they?" one of his visitors asks.

"I don't know," Hendren says. "They look like little holes. Of course, the thing we want to be careful of is that they don't represent vaginas."

Separating rectum from bladder is a most delicate business, too delicate for cautery. Even a meticulous hand could cause unwitting damage with cautery. Delicate tissues could be imperceptibly burned, and a burn could hinder healing and thus lead to a fistula. For this phase, Hendren will use only scissors and knife, even though they'll slow him considerably. As he sets about freeing up the rectum, he is on the lookout for a vagina. One could be almost anywhere. So far, everything points to none.

Faced with this kind of anatomic puzzle, less gifted surgeons might be tempted to walk away. Not Hendren. He's still facing some significant unknowns, the vagina question being most notable of those, but he's done enough by now, almost noon, to be able to envision Lucy's postoperative anatomy clearly. This may be Hendren's greatest gift — his ability to conceptualize, to assess correctly the consequences of his every move before he makes it, to know with strategic certainty how so many hundreds of steps will come together in the end, all without benefit of blueprint or manual, only on the basis of what's in his head. It is almost a four-dimensional ability, something that cannot be taught or gleaned from *Gray's Anatomy*.

Mobilizing the rectum will take time. At the very least, Hendren will have to unhook it and pull it down to where the anus will be. He may very well have to take a piece of it for use as a vagina. At this stage of the operation, he can't sacrifice any of it. He has to preserve the blood supply, its lifeline, throughout its entire length. Knife, small scissors, large scissors, forceps — taking his cues from how the tissues are aligned, Hendren segues through his instruments. He's not speaking now. His scrub nurse of 30 years, Dorothy Enos, isn't either. But when he extends his hand, there she is, placing the next tool he needs softly into his palm, not a second wasted.

With scissors, he starts dissecting in an area to the right side of the rectum. The tissue there looks different. *It looks thickened,* Hendren thinks. *Let's see what's there, if anything.*

He's found something. It's definitely an organ of some kind. Pinkish, about three centimeters long, the width of Hendren's little finger.

Vagina! Not a very good size, but it's vagina. Ending blindly. I wonder if

When organs are being repaired, the goal is accuracy. "A case like Lucy's," Hendren says, "doesn't allow you to put in one mistaken stitch. Not a one. One bad stitch in here, and you have a leak. One leak, and you can have a dead patient — or a hell of a complicated, protracted course."

it's connected to a uterus up above? Have to keep dissecting to find out.

Hendren snips off the blind end of the vagina.

If we find another one equally small, we can sew them both together. We've done that before, and it's worked nicely. Or there's always colon. We can use colon to extend it. Thank goodness, she's got plenty of colon to spare.

"We'll figure something out," he says.

It is 2:45 p.m. For the nurses — all but Enos — the day shift is drawing to a close. Hendren returns to his exploration. It is six hours into the operation, and he has yet to set about the actual repair.

On Lucy's right, he makes a promising discovery: an ovary. Next to it, he finds a Fallopian tube. With his fingers, he traces the tube down to a uterus. Connected to the uterus is the undersize vagina that he mobilized from below.

On Lucy's left side, he finds a second ovary, a second Fallopian tube, a second uterus. But below it, nothing. No second vagina. The second uterus is misshapen and shrunken, barely an inch long. It must come out.

Hendren again turns his attention to Lucy's intestines. Several hours ago, Hendren began separating the rectum from the bladder. Now he finishes the job. The rectum is finally free of the bladder, but it is not free-floating. It remains tethered to the body wall by its mesentery.

Hendren tries pulling the end of the rectum down to where he wants Lucy's vagina to be. "It won't quite reach," he says. "I'm going to have to lengthen the mesentery."

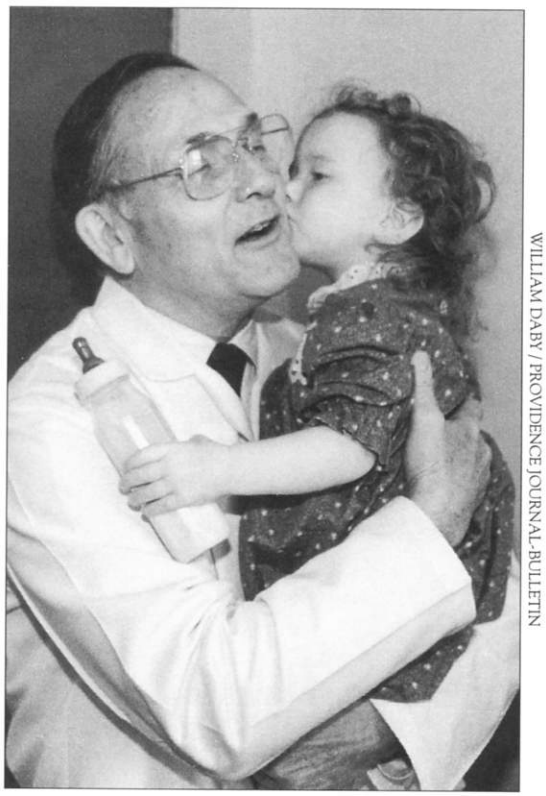
4:20 p.m. The bad kidney is out. The useless uterus is out. Bladder and rectum have been separated. The rectum has been mobilized.

Hendren's done about all the taking apart he'll have to do today. It's time to turn Lucy once again and start putting her together.

Hendren's next task is making a urethra out of Lucy's cloaca, the long, thin passageway he opened at the start of the operation.

That done, he asks, "Want to take a quick break? Let's take a quick supper break." Hendren has been standing for more than eight hours, and until now, when he gives it some thought, he hasn't been hungry or thirsty or in need of a trip to the bathroom. This evening, he has a salad followed by a slice of apple pie and a glass of lemonade. His break lasts as long as it takes to use the bathroom, get an update on the war, eat, and scrub back in — about 20 minutes.

Back to work. He pulls Lucy's colon through the bottom. He leaves a little extra — about two inches — hanging out, so there's no question that it will be long enough. Guided by marks that he made this morning, he positions the colon where a normal vagina would be.



WILLIAM DABY / PROVIDENCE JOURNAL-BULLETIN

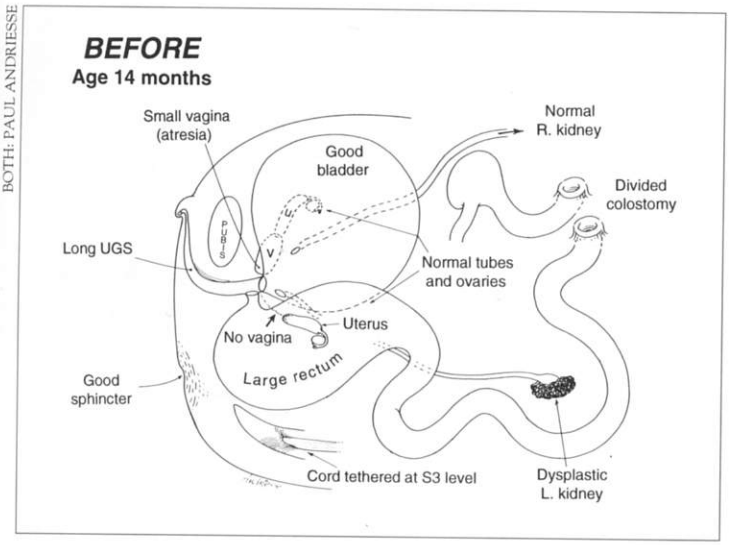
A grateful patient: Hendren gets a postoperative hug not from Lucy Moore but from another of his many cloacal patients. Some parents seek him out after his name comes up many times in a library search.

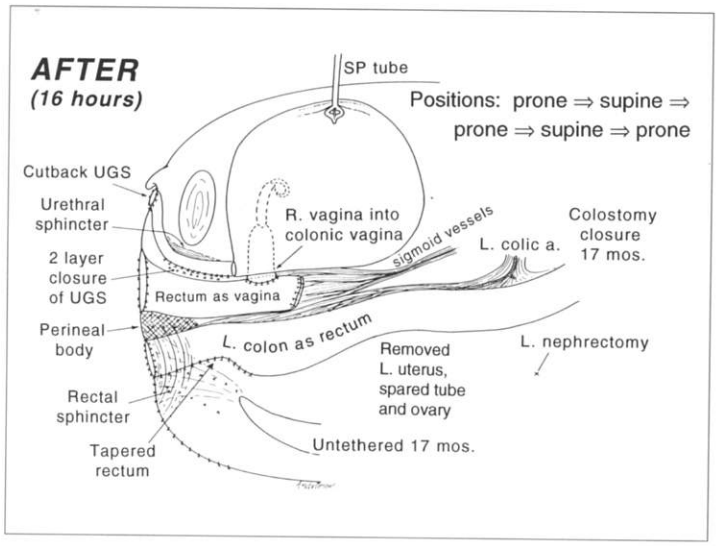
7:45 p.m. Hendren is working inside Lucy's belly now. Although the colon-vagina is securely anchored, it is not its own organ yet. It is still the lower end of her large intestine, most of which is needed for something else. Hendren must decide on a proper length and divide that piece from the rest of the colon.

Then Hendren has to get that colon to reach down to Lucy's bottom. Needing more length, he must divide the mesentery again. It is tedious work, separating the sheets of tissue with the blunt edge of the scissors, identifying vessels, deciding which must be ligated, which preserved.

Twelve hours into the operation, and Hendren's movements are as steady and smooth as when he began. This is not only because he is a 64-year-old man still blessed with stamina; at any age, even the best surgeon's hands may tire or tremble slightly during a long operation. Sooner or later it is a physiological inevitability, no matter how you are constituted. But a smart surgeon can take steps to minimize this. One trick Hendren has learned is resting the wrist of the

BOTH: PAUL ANDRIESSE





A look inside: The top diagram shows the anatomical confusion inside Lucy Moore before Hendren operated on her, and the bottom one the results after 16 hours of surgery on the 14-month-old baby. The cord shown in both diagrams is her spinal cord, which was untethered in a separate procedure by a neurosurgeon. The legend regarding positions refers to the number of times Lucy was turned during the operation.

cutting hand lightly on the patient. Another trick is holding the scissors as Hendren is holding them now: across the palm, like chopsticks. This way, the surgeon does not have to raise his arm and lift his shoulder to reach inside a wound. An arm uplifted in that fashion tires more easily.

9:00 p.m. There's little left to do with Lucy's abdomen but close her up and turn her over one last time, to finish her bottom.

Hendren is tired. If he chose to pay attention to it, he could hear a part of his mind urging him to hurry up, to get the job done. But he doesn't listen to that voice. When organs are being repaired, the goal is accuracy, and accuracy is not always consistent with speed. "A case like Lucy's," Hendren says, "doesn't allow you to put in a single mistaken stitch. Not a one. One bad stitch in here, and you have a leak. One leak, and you can have a dead patient — or a hell of a complicated, protracted course."

Lucy's belly is closed. *Looks pretty good,* Hendren thinks.

Twenty to midnight. Lucy's anatomy looks astonishingly normal: urethra *where it belongs*, vagina *where nature should have put it*, anus *perfectly positioned*.

"It's a very good one," Hendren says.

"Have you got a nice warm blanket we can put the baby on?" Hendren asks. A nurse fetches one from the blanket warmer. Hendren lifts Lucy up and lays her on it.

"She says, 'I feel better already!'" Hendren says.

Hendren removes his gown, headlamp, and loupes and fishes around on the side counter for his eyeglasses. "That's a hard operation," he says to himself.

Sometimes after an operation, he will pick up the phone and dictate, entirely from memory, his operative report to a machine. But tonight, he's too tired. He will dictate Lucy's report, which will run to five single-spaced typewritten pages, on Monday. For now, he scribbles a few sentences and a diagram that will refresh his memory.

12:20 a.m., Saturday, January 19, 1991. Sixteen hours and thirty minutes after Lucy was brought into the OR, she is wheeled out into a deserted corridor. One of the nurses has left a note with the number of the Moores' hotel. Hendren dials. Jack comes on the line.

"Hi," Hendren says, "everything's fine. We just finished. She's going up to the intensive care unit on the fifth floor. I feel good about it. . . . Yes. . . . Give them about half an hour; then it'll be OK."

I feel optimistic about what we were able to do, he thinks. And then: *I wonder what Eleanor's cooked for dinner. I wonder how the war's going.*

It is after 1:00 a.m. when Hendren finally gets to the apartment. Eleanor is cooking bacon and scrambled eggs when he arrives. Bacon and eggs are quick and easy, and Hendren, whose blood cholesterol has somehow stayed abnormally low, has eaten them all his life. Sometimes on a Saturday evening, Hendren will cap his day with a beer or a bourbon old-fashioned, but not on any other day, not on a Friday. He switches the bedroom TV to CNN to catch the latest on the war.

The Hendrens fall asleep with the television on, but not before saying "I love you" to each other. In all their years together, Eleanor and Hardy have tried not to let a day slip without saying those three words at least once.

Sometime around 3:00 a.m., Hendren stirs. He shuts the television off and goes back to sleep.

At about the time Hendren was making Lucy Moore into a girl with the potential for having children of her own someday, his research assistant, Pam Spinney, was beginning a project. She was setting out to track down each of the 105 cloaca patients Hendren had at the time, some of whom, in need of medical attention no more, were no longer in contact with him. She was attempting to see how they had made out as they moved from childhood into the age when sexual relations and reproduction joined continence and appearance as concerns of the cloacal patient. Of Hendren's 105 patients, Spinney succeeded in tracking down 98. They ranged in age from infancy to 32 years old.

Constant wetting remained a problem for only three patients, for all of whom Hendren planned further work. Forty-seven patients had normal bowel control; another 27 remained continent with the use of a soapsuds

"Dear Dr. Hendren," wrote Lucy's mother just before Thanksgiving of 1991. "Lucy turned two yesterday. . . . I took the opportunity, as I have countless times before, to pay tribute to YOU. . . . So this is a full-fledged love letter. We owe our Lucy to you. Thank you again.

enema every day or every other day; and only 7 could be said to be truly incontinent. (Of the remaining 17, some had occasional incontinence, while others were too soon out of surgery to assess.) And two of Hendren's cloaca patients had delivered babies by cesarean section.

Having slept five hours after rebuilding Lucy, Hendren is awake by 6:30 a.m. By 8:00 a.m., he is at the office, going over the details of the talk on cloacal exstrophy he is giving this morning to a gathering of physicians at Harvard Medical School's Countway Library of Medicine. An hour and a half later, after speaking and fielding the inevitable questions, he is back at the office to meet with a urology resident who is seeking career advice. When the meeting is over, Hendren slips onto the wards to make his rounds. Lucy is in intensive care, still heavily sedated and on a ventilator. Hendren fills in the Moores on the details of her operation and sees his other patients and their parents. Back at the office, he works, alone, on papers and a book in progress until well after dark. *Always behind.*

But now it's time for a break. Time to head to Duxbury. *Time to recharge the batteries.*

On Route 3, it's a straight shot south. On his car phone, he apprises Eleanor of his whereabouts. Just before Plymouth, Hendren leaves the highway and heads past frozen cranberry bogs to Duxbury, a town married to the sea for almost four centuries.

Built in 1901, the house is white shingle with a slate roof and a patio along the back, the side that faces the Atlantic Ocean. It was built on the highest spot of land around, high enough to keep the cellar dry during hurricanes and nor'easters. Hardy stops outside the driveway gate, secured with an old fan belt. The Hendren dogs, a German shepherd and a black Labrador on her last legs, greet him.

Eleanor's in the kitchen when he opens the back door. "Momma," he says, "I'm home."

Many weeks after Lucy Moore has gone back to Florida, on a day when the sky is clear, the grass is green, and Eleanor's rose gardens have returned to life, Hardy Hendren is at home. Today is Sunday. Nothing is on the schedule, and there is an incongruous laziness in the air.

Hardy goes to his study and throws the windows open to the ocean breeze, warm and inviting today. Hardy can work here, and sometimes he does, but other times he reads or simply sits and lets the mind wander.

Here, in this study, Hardy Hendren plans to write a book. He has sketched out an outline and put together several hundred typed pages of notes. He has a tentative title: *Inside Number One*. He knows what some people think when he tells them the title, but explains that's not the meaning at all. *Inside Number One*, he says, will be a firsthand look inside some of the institutions where he's worked.

The Hendren clan: Hardy and Eleanor's oldest child, a daughter, Sandy, died of diabetes in 1983. She is pictured above, in 1966 at age 18. At right is the rest of the clan — Hardy and Eleanor and their four sons and their families — in August 1992.

One story will undoubtedly concern his onetime mentor. In May 1974, both Hardy and Robert Gross happened to be in Colorado Springs to attend the annual meeting of the prestigious American Surgical Association. Hendren was presenting his results with undiversion — the process of restoring the function of urinary tracts left fallow by earlier surgery. In the 20-minute discussion period, Gross, elder statesman of pediatric surgery, was the first of several prominent surgeons called to the podium to comment on Hendren's presentation.

Gross complimented Hendren's achievement. "As I get to the end of an academic surgical career," he concluded, "it has been a tremendous satisfaction to me on many occasions to find young men who have been through the residency training program and on our staff who . . . have accomplished things which we thought before were impossible. It's a great pleasure to let them have the ball and go toward new goals and get far ahead of us. As I reflect on these things, it is very appropriate to recall the words, uttered so long ago by Leonardo da Vinci when he said, 'The brilliant student will certainly outshine his teacher.'"

The audience stood in applause, an unusual event at an ASA meeting. Hendren was stunned. When others had finished their comments, Hendren rose to thank his former teacher.

Sandy's room is around the corner from Hardy's study. It is a spacious and cheerful room. A portrait of Sandy at about the age at which her diabetes was diagnosed graces one wall, along with her nursing diploma, earned from Boston University when she was almost 33.

"Sandy was a brave girl," her father says. "Sometimes I come in here, and I can still hear her voice."

Forced to give up her dream of following her father in his profession, Sandy threw her energy into acting and, later, becoming a nurse. Her disease clawed at her, but it could not pull her down, not yet. She was a gynecology nurse and had three good years, but then her health started to slip again. Her vision was deteriorating, and there was laser surgery to forestall blindness, but the tide could not be stemmed forever. In early 1983, her leg became badly infected. Antibiotics couldn't beat the infection. By June, she required daily debridement — removal of dead and dying tissue. She was in a wheelchair.

In June 1983, a year after his appointment as chief of surgery at Children's, Hardy was to travel to France to receive an honorary doctoral degree from the Université d'Aix-Marseille. It was a great honor: Hendren was only the second American to be selected, and Sandy wanted to be there with her dad. She was crestfallen at the thought that her leg might prevent her from going.

Hardy thought about what his friend and DMS classmate Samuel Katz had said when Sandy's diabetes had been discovered when his little girl was only seven: that her life expectancy was at most only 20 more years. Now, she was 36.

"Sissy," he said, "we're going to take you." Hardy packed gauze and antiseptic and ointment and some of his instruments, and he and Eleanor took turns with Sandy's wheelchair. They got her to the airport, to Paris, onto the connecting flight to Marseilles. Morning, noon, and night, Hardy boiled his instruments in a pan on a stove, and when they had cooled, he removed the dead tissue from his daughter's leg. Three times a day, Sandy gritted her teeth and didn't complain.

The day after their return to Boston, Sandy's left leg was amputated below the knee at Massachusetts General Hospital.

In October of 1984, on a Saturday two days before Sandy's 37th birthday, Eleanor and Hardy flew to San Francisco, where Hardy was due at a meeting of the governors of the American College of Surgeons. For her birthday, her parents gave Sandy a videocassette recorder. It was just what she'd wanted. The very first thing she would do was record *Dallas*, her favorite TV show. On Sunday, with a friend's help, Sandy threw herself a birthday party. Friends and brothers and fellow actors and actresses came. Everyone ate fried chicken. A singing telegram was delivered. That night, Sandy went to bed watching a *Dallas* rerun.

"A perfect end to a perfect day," she told a friend.

At 9:00 on Monday morning, 6:00 San Francisco time, Eleanor called to wish her daughter a happy 37th.

"I can't wake her," the nurse on duty in Duxbury said.

The ambulance crew managed to start Sandy's heart, but by the time they got her to the hospital, she was irreversibly comatose.

When two weeks had passed, when a senior neurologist, a family friend, said there was no hope Sandy would ever recover, her family gathered around her bed at the Mass General. One by one, the people she loved whispered their private farewells. Everyone held hands around Sandy as Douglas recited the 23rd Psalm.

Sandy was disconnected from the ventilator.

Slowly, she turned her head to the left, toward her father. Her eyes opened and locked on Hardy. They stayed on him as he stroked her hair and the life went out of her.

In early May 1991, Lucy Moore is back in Hendren's operating room for the last major surgery she will need. With his endoscope hooked up to the video, Hendren examines Lucy and pronounces satisfaction with her new parts. He trims her new rectum, which has prolapsed slightly. In an operation called a colostomy takedown, he frees up her two stomata, removes their ends, sews the two pieces of her large intestine together, and then brings everything back inside. Lucy now has a colon that ends in an anus, not a bag.

Just before Thanksgiving 1991, Hardy Hendren receives a letter from Lucy's mother.

"Dear Dr. Hendren,

"Lucy turned two yesterday. As is our (Jack thinks obnoxious) tradition, I went around the table videotaping the family talking about Lucy. My mother got too choked up to talk. My sister and babysitter cried. My uncle called her a Miracle Baby. My son says she has the best table manners in the family. Eight other loving comments and then it was my turn.

"I took the opportunity, as I have countless times before, to pay tribute to YOU. "If it wasn't for Hardy Hendren . . ." Well, before you knew it, there were cheers of HARDY! HARDY! HARDY! spilling out of our living room. I figured you probably heard us and wondered what the fuss was all about. . . .

"I have tried to explain how strange it is to figure so small a part in someone's life (yours) who plays so GREAT a part in our lives. It's a kind of unrequited love, I'd say. So this is a full-fledged love letter. I'll shout your praises from a mountaintop, I'll pay tribute to you at an awards ceremony, I'll treat you to the best dinner in Sarasota, or I'll simply remember to thank you quietly every so often.

"We owe our Lucy to you. Thank you again, Beth." ■